

# The United States MILLER

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## THE HAMILTON-CORLISS ENGINE.

Among the many varieties of Corliss engines, the Hamilton-Corliss, built by the Hooven, Owens & Rentschler Co., Hamilton, O., holds high rank, and it is claimed by the manufacturers that there is a saving of fuel of from 30 to 40 per cent., and that it has few, if any, superiors among the Corliss family of engines in mechanical construction, regularity of speed, economy of steam, and accessibility of all its parts. Besides this there is a saving of oil and an increase of all that relates to the production of power. Its mechanical construction is so perfect that there are no stoppages by "break downs" and hence little cost in repairing. The new high speed governor which the manufacturers have attached, causes the speed to be very regular under varying loads and steam pressure, while no part of the regulating medium enters the steam chest out of sight of the engineer, and subject to the corrosive action of steam and the oils used in lubricating the valves and piston. All the larger parts are made from drawings and symmetrically proportioned to the size of engine, while the smaller parts are made to gauges, so that the manufacturers are always ready to duplicate any part if needed for repairs. The cylinders are made of the best iron, and the shafts are of hammered wrought iron with long bearings, the diameter of which equals one-half the diameter of the cylinder. There are several sizes of engines built, with cylinder from 12x30 to 24x60, and from 44 to 240 horse power. Further particulars will be supplied by the manufacturers.

## LOSS BY LACK OF SYSTEM.

The manufacturer, says the *Scientific American*, can, usually, by reference to his books, ascertain the cost of any article of his production, and the amount of his regular daily expenses. He can discover how much material has been lost by waste, and possibly he can make approximate allowance for loss by incompetence of his workmen. But there is one source of loss that cannot be readily estimated, and yet exists and has its effect on the results of the year's production. This is the loss from the lack of a rigid system in the using of tools and from the habitual carelessness this want of system encourages.

In every shop there must be tools that are for general use and are not individual possessions. If each successive user mislays a tool that is intended for general shop use, the aggregate of time lost in seeking for it may amount to a serious waste. Drills, taps, reamers, boring-bars, arbors, milling-tools, wrenches, and other implements may be intended for general use all about the shop, but when not in use they should have a home—an abiding place—so that no time would be lost in searching for them. And they should be left in proper condition for immediate use, either by the last user, or by some person whose business it is to keep them in condition. In every large shop pro-

vision should be made for this purpose, a repairer or sharpener being designated to perform this duty.

Attention to these little details is fully as important in small shops as in large ones; for sometimes the loss of small sums occasioned by carelessness will seriously affect the balance sheet. A good practice, which is a rule in many large establishments, could be followed in smaller ones with saving results. This is to have a series of shelves or pigeon-holes to contain the drills, reamers, arbors, etc., each numbered and each provided with a marked tag of sheet-metal designating the tool. Every workman has a hook convenient to the pigeon-holes, with a card bearing his name. When the workman takes a tool from its rack, or pigeon-hole, he hangs its corresponding tag on his hook. A single glance

should be laid on a bench.

Every shop should be provided with boxes or other conveniences for holding bolts, nuts, washers, angle irons, and blocks, for lathe and planer use, and boxes for receiving odds and ends not of present apparent value. These boxes should be distinct from the scrap heap, which ought to receive nothing of real possible shop use. They not only conduce to habits of order, but are valuable magazines to draw from in case of emergency.

The Chancellor of the Exchequer in India thinks that country can undersell the United States on wheat, because the Indian peasant can live on six cents a day, and doesn't need any clothes to speak of. This is one of the medieval superstitions about economics which it is the despair of political economists to

beany and almost aromatic flavor, inseparable from wheats grown in the climates and soils of the tropics. "The flours are ricy, the texture of the breads is too close, and the crust is hard and brittle. But these characteristics do not detract from their usefulness in any important degree. As is well known, a miller cannot show skill in his craft to greater advantage or profit than that with which he selects his wheats and mixes his grists so as to produce to best advantage a flour from which bread can be made of the color, bloom, strength, and flavor desired, and withal a good yield."

The report adds: "We pronounce them to be exceedingly useful wheats; in fact, hardly equaled for what is deficient and wanting in the English markets by any other wheats. Their chief characteristics are just those in which the wheat grown in our variable climate [Great Britain] are most deficient. Their great dryness and soundness render them invaluable for admixture with English wheats that are in any degree out of condition through moisture, and the great proportions of the wheat harvested here have been in that condition for some years past, a condition that must prevail in all others than that of wheats harvested and stored during fine and favorable weather; and this the English farmer knows, greatly to his cost, is a state of climate that is by a long way the exception rather than the rule."

The thinness of the skins of these Indian

wheats, which makes a heavy yield of flour, also puts them in the front rank as millers' wheat. The yields of flour range from 77.46 to 80.52 per cent., against 65.2 for English and 72.2 for American spring wheats. They also yield a larger percentage of bread than other wheats. The beany flavor is found not to be a serious obstacle, for fair average deliveries, well cleaned and properly dealt with, can be employed in the proportion of 25 per cent. to 50 per cent. with British or wheats like the Americans, possessing a sweet milky or nutty flavor. The character and general excellence of the Indian wheats are said to be improving with every harvest. The development of the wheat resources of India is strongly recommended in the report.

shows where the missing tool is, and when it is returned to its place its tag is replaced over the corresponding pigeon-hole. In effect, the workman charges himself with the tap, drill, or other tool when he takes it, and credits himself with it when he returns it.

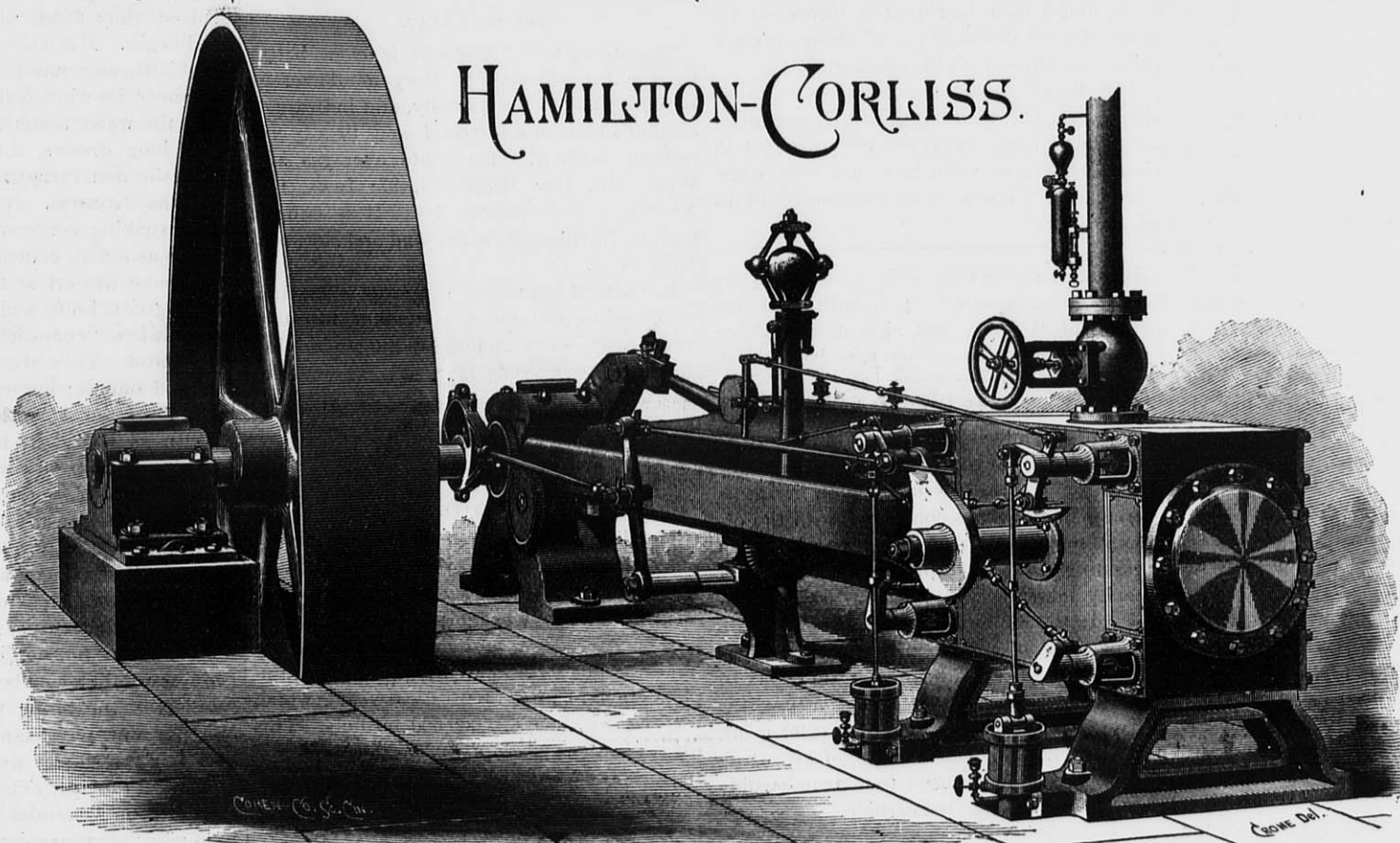
The practice of this system has a good general effect on the workmen. They cannot fail to see the advantages to themselves in the saving of vexation in an aimless search for a missing tool; and the habit of care for general shop tools will extend to a similar care for their own bench and machine appliances. A saving of time could also be made in many shops by a more generous provision of general bench appliances. A single bench block for the use of a dozen vise men is not enough; it would be well if every vise had a bench block, a casting say eight or ten inches long, by four or five inches high and wide, planed on one face and side. Its cost is trifling and its uses many. It saves the hammering on the vise, and the defacing of the bench when used for straightening rods and small forgings. Encouragement to order in the care of lathe and planer tools would be given by providing for each lathe a handy tray, or sliding shelf of wood, to lie across the ways; lathe tools should never be laid on the ways of a lathe; the nicely trued surface of the Vs of a lathe cannot stand the batter of steel tools as they are usually dropped from the hand. Such a tray is useful, also, on the platen of a planer, which is too commonly used as a general receptacle for anything that

root out. The American laborer gets higher wages than any other because his labor is more efficient in production. That a race of spiritless starvelings should "run out" a race of energetic and ingenious workmen is grotesquely contrary to all history and all rational philosophy; and indeed, the most remarkable feature of recent industrial history is that this country, where labor is the highest in the world, is breaking the markets of the Old World, where the masses are doomed to hopeless poverty.

## TESTS OF INDIAN WHEAT.

Dornbusch (England) publishes the report of an English milling firm to the Secretary of State for India on a series of experiments with Indian wheat. Four representative varieties were taken. The results obtained were that, without exception, the yield of flour was unusually large, the two lots most suitable for bakers making probably more bread than the product of any other country. The flour was found profitable for millers, and in color and strength ranged from white and light to dull brown, and the strength liked by the bakers. The flavor of the four lots was beany. The report says there is no probability of these Indian wheats coming into demand for manufacture into flour such as that required by the British and most other foreign markets without a liberal mixture of other wheats. The Indian flours were found to possess in a marked degree the same characteristics of great dryness, and a distinct

THE Hon. W. M. Robbins, of North Carolina, in a recent address before the literary society of Erskine college, gave the young men about entering the busy stages of life some excellent counsel, which seems all the more impressive when compared with the utterances before the rebellion. "The dignity of labor must be respected," said Mr. Robbins. "The young man must discard the old models, pull down the ancient idols, put away false pride, and go to work. In this way they would make the fair southern land what God and nature intended it to be—the world's garden of beauty, a treasure house of wealth, the dwelling place of power, the home of science and of humanity's best and noblest civilization."



HAMILTON-CORLISS.



## UNITED STATES MILLER.

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MILWAUKEE, AUGUST, 1883.

## ANNOUNCEMENT:

WM. DUNHAM, Editor of "The Miller," 69 Mark Lane, and HENRY F. GILLIG & Co., 449 Strand, London, England are authorized to receive subscriptions for the UNITED STATES MILLER.

We send out monthly a large number of sample copies of the UNITED STATES MILLER to millers who are not subscribers. We wish them to consider the receipt of a sample copy as a cordial invitation to them to become regular subscribers. Send us One Dollar in money or stamps, and we will send THE UNITED STATES MILLER to you for one year.

The United States Consuls in various parts of the world who receive this paper, will please oblige the publishers and manufacturers advertising therein, by placing it in their offices where it can be seen by those parties seeking such information as it may contain. We shall be highly gratified to receive communications for publication from Consuls or Consular Agents everywhere, and we believe that such letters will be read with interest, and will be highly appreciated.

## ATTENTION FLOUR MILL OWNERS.

We desire all flour-mill owners to write to us, giving us their correct address, with post-office, county and state. Please state also capacity of mill in barrels per day of 24 hours, what kind of power is used, and whether stones or rollers or both stones and rollers are used. Your compliance with above request will confer a benefit not only on us and the mill-furnishers and flour dealers, but on yourself. Address as early as convenient,

E. HARRISON CAWKER,

Pub. of Cawker's American Flour Mill Directory,  
116 & 118 Grand Ave.,  
Milwaukee, Wis.

FLOUR MILL OWNERS—Please send us your address, with capacity of your mill in barrels per day of 24 hours, and also state whether you use steam or water-power, or both.

WILLIAM TRUDGEON, Esq., the able representative of the Richmond Manufacturing Co., of Lockport, N. Y., called on us recently. He reports business very good.

INVENTORS all over the civilized world are busy trying to invent a successful bran-packer. Secretary Seamans receives new designs almost daily.

THE MILLERS' National Insurance Co., of Chicago, Ill., in their semi-annual statement, dated July 1, show a surplus over all liabilities of \$811,253.57. Their losses since January 1, have amounted to \$58,090.60. The company appears to be in a flourishing condition.

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OUR encyclopaedic fellows do not move armies or senates, nor do they build railroads or cities. They gravitate into the unseen corners of newspapers, or wear out their lives under the weight of their own erudition in some pedagogue's seat. Knowledge is inestimable. But it must be turned into character. Life itself is the best university. Experience is the great almanac. The object of the college should be not alone to make gentlemen—but men.

ATTENTION has recently again been drawn to M. M. Neugean and Delaite's process of protecting iron surfaces against rust. A very fine powder of metallic zinc is mixed with oil and a siccative, and applied to the iron by means of an ordinary brush. In many cases one coat is sufficient. Two coats are, at any rate, guaranteed to secure a protection against the corrosive action of the atmosphere, as well as of sea-water. The zinc coating gives the iron a steel-gray appearance, and it does not interfere with subsequent painting. A good mixture, of which only the necessary quantity should be prepared, consists of eight parts, by weight, of zinc, 71 of oil, and 2 of a siccative.—Engineering.

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THE milling business in nearly all parts of the country is still very dull, but is not as dull as during the previous month.

Mr. G. A. Buchholz, of Frankfort-on-the-Main, the inventor of Buchholz's roller mills, called on us July 31st. We shall have something to say on the subject in our September number.

OUR friend R. Birkholz, the milling engineer, who occasionally contributes to the columns of the UNITED STATES MILLER, was in the sixth story of the Camp Spring Mill, in St. Louis, not long since, when one of those Mississippi zephyrs came along, and some of the boys with Birkholz yelled, "Look out—cyclone's comin'". They say that Birkholz got down to the ground floor in quicker time than any first class elevator could have made the trip.

ANTON KUFKE'S Circular, dated Liverpool, July 18th, 1883, says: There has been quite a break in the weather, and a good deal of heavy rain has fallen all over the country. Though this has probably not yet done any injury to the growing crops, it has, nevertheless caused some apprehensions. Farmers' deliveries of native wheat are diminishing, and last week only amounted to about 100,000 qrs. at the average price of 42s. 2d., against 48s. 5d. at the corresponding period last year. The unsettled weather of the last few days has at length imparted a little life into the flour trade, and I have to report an improved demand for all descriptions of flour, though prices remain so far without alteration.

The Wheat market has been much more affected by the weather than the flour market, and Cargoes improved 6d. a quarter in value, whilst a large business has been done in wheat on the spot at an advance of 1d. to 2d. per cental.

FLOUR MILL OWNERS—Please send us your address, with capacity of your mill in barrels per day of 24 hours, and also state whether you use steam or water-power, or both.

## A CAST IRON FILE.

One of the interesting inventions shown at the recent railway exposition, at Chicago, was a cast iron file, the merit of which lies in its extreme durability as compared with the ordinary steel file. Scientists assert that in hardening cast iron brittleness and want of tenacity increase with the increase of hardness. In the file in question, there is from 3 to 4 per cent. of carbon, and the tenacity, as compared with steel, bears a ratio of six to one. It is claimed for the cast iron that it is a true carbide of iron, whereas steel is an oxidated carbide. One breath of air while the metal is being reduced to a true carbide reduces it to an oxidated carbide.

## BOOKS RECEIVED.

PRACTICAL CARPENTRY—Price \$1; published by the Indian Publication Co. New York. A guide to the correct working and laying out of all kinds of Carpenters' and Joiners' work; Solutions of the various problems in Hip-roofs, Gothic work, Centering, Splayed work, Joints, Hinging, Dovetailing, Mitering, Timber-splicing, Hoppers, Sky-lights, Raking-mouldings etc. This work should be in the hands of every mechanic. One of the features to which this book will undoubtedly owe its success, is the absence of those numerous formulas which serve only to confuse the ideas of so many workmen; everything is written in a clear, concise and practical manner, and its utility is brought within the grasp of those workmen who have not had the benefit of a school education.

COMMERCIAL RELATIONS OF THE UNITED STATES FOR 1880 AND 1881; from the Dept of State, Washington, D. C.

INDIANA AGRICULTURAL REPORTS FOR 1879, 1880, 1881, 1882; from the Secretary of the Indiana State Agricultural Society.

WISCONSIN STATE AGRICULTURAL SOCIETY REPORT FOR 1881-'82; from the Secretary of the Society.

AN experimental lighting of the Court Opera House at Vienna by the electric light, recently took place before a large audience of invited guests. The first scene was laid in a room in which broad daylight was gradually changed through dusk and twilight into heavy night. The experiment went off with surprising steadiness, and at the close the audience broke into loud applause. After further experiments came a trial of costumes under various degrees of lighting. About fifty "supers," male and female, were assembled on the stage in dresses of varied hue and texture. The electric light showed up the colors of the dresses perfectly, without any of the materials losing their brilliancy. After this there succeeded a landscape scene, in which bright daylight was followed by slow

degrees of evening red, sunset, moonlight morning glow and sunrise. After this the proceedings terminated with a thunderstorm, and the audience left with high expressions of approval.

## THE CROPS IN JULY.

## WHEAT.

Winter wheat has been harvested in the South, and the harvest is now in progress in the central zone, and will be completed during the month in the northern.

The outcome will not differ much from the expectation in April, though somewhat larger than was indicated in the June report, finer weather having developed the promise in some sections and dispelled in slight degree the previous forebodings of failure. Yet the improvement is not very marked, and assurance is made very positively sure that there will be a shortage of eighty to ninety million bushels in the winter wheat crop, and a probable deficiency of seventy to eighty million bushels in the aggregate wheat product of the year. As there will be a surplus left over on the 1st of August greater by forty million bushels than the small surplus of the previous year, there will be an ample supply for home consumption and an average exportation, though prices must be high, and in event of a temporary stoppage in the movement of competing grain toward European markets still higher than heretofore.

Reference to the table of averages will show that the improvement of the past month has been mainly in Connecticut, New York, Virginia, South Carolina, Texas, Ohio, Michigan, Indiana, Illinois, Missouri, Kansas, and California. The general average of condition is advanced from 75 to 79.

## SPRING WHEAT.

The spring wheat prospect is even better than in July of last year. The general average is 100 against 98 for last July, and indicates a crop of about one hundred and twenty-five million bushels. The State averages are: Wisconsin, 100; Minnesota, 97; Iowa, 100; Nebraska, 104; Dakota, 103. It is equally high in Northern New England and Northern New York.

In parts of Minnesota the crop is needing rain, and in sections of abundant moisture weeds are vigorous and threatening to smother the wheat; but weeds are more efficient for evil in the Northwest in any year than all other causes of injury combined. There is infinitely more loss from weeds than from grasshoppers.

## THE PROSPECTIVE SUPPLY.

The distribution of the crop of 1882, which was estimated at 504,185,470 bushels, shows a home consumption of 246,879,980 bushels—for seeding, 51,425,212 bushels—leaving a net surplus of 205,880,328 bushels, from which are made exports (estimated from nearly complete official figures for the fiscal year), which will require about 153,000,000 bushels. This makes last year's crop 47,000,000 in excess of requirements. The distribution is thus presented:

Group of States.	Production.	Consumption.		Surplus.	Deficiency.
		For bread.	For seed.		
New England.....	1,108,020	19,144,660	119,520	.....	18,161,100
Middle.....	38,748,200	51,177,441	9,770,820	.....	15,202,321
South Atlantic and Gulf.....	40,836,830	13,884,024	9,823,416	.....	20,600,890
Central Atlantic and Tennessee.....	27,723,420	73,884,725	8,889,475	.....	.....
Central Western.....	28,497,300	20,880,110	9,213,000	.....	.....
Pacific and Territories.....	67,276,100	11,303,895	7,053,151	.....	.....
Totals.....	504,185,470	246,879,980	51,425,212	205,880,328	57,564,811

On the same basis the distribution of the five preceding years made the following averages:

	Bushels.
Used for food per annum.....	238,139,786
Used for seed per annum.....	50,800,065
Exported as wheat and flour.....	145,274,678

Total distribution..... 429,214,529

The estimates of production, with a few millions reduction of the usual surplus to eke out the failure of 1881, cover this amount.

## BARLEY.

The condition of barley is represented by 97; July, 1882, 96. The average in New York

is 103; in Pennsylvania, 91; Wisconsin, 102; California, 90.

## CORN.

The rainfall of the spring and early summer has been unfavorable for corn planting, and for germination when planted. Much of the late crop was not sufficiently matured for seed, and this fact increased the area of re-planting. On the other hand, the winter-killing of extensive areas of wheat rendered necessary a replanting in some spring crop. From this cause a large extension of the breadth in maize is due in the central States of the West.

The area of the corn crop has been increased about two and a half million acres, making the aggregate sixty-eight million acres. There has been some extension of area in nearly every State. The proportion of increase is large in the northwest and southwest. On the coast from Virginia to the Mississippi the advance has been small. In some places the reduction of price from enlargement of supply last year had a discouraging effect.

There has been too much rain in the great Western maize districts, and failure of stands from planting poor seed, making the crop late and growth small, but improvement has of late been rapid. Taking all the States together, the average for corn is 88 against 85 July, 1882, 90 in 1881, and 100 in 1880.

FLOUR MILL OWNERS—Please send us your address, with capacity of your mill in barrels per day of 24 hours, and also state whether you use steam or water-power, or both.

## CHINESE CUSTOMS.

The Chinamen seem to be our antipodes in customs as well as geographically. In matters of dress they finish where the rest of mankind begin. His waistcoat is outside his coat, and his drawers outside his pants. We blacken our shoes, he whitens them. Our ladies compress the waist, theirs the feet. Our women wear long dresses, theirs long sleeves. In China the men carry the fans, and the women wear the trousers. In eating, their customs are in striking contrast with ours. We have a soup as a first course and dessert at last; they have dessert at first and soup at last. They ignore knife and fork and spoon, and eat with two "chopsticks," both held in the right hand. They abominate beef, milk, butter, and cheese; but eat puppies, cats, rats, birds' nests, sharks' fins and snails.

With us the right hand is the place of honor; with them it is the left hand. In dating letters we place the year last; they write the year first. Instead of saying "northeast" or "southwest," they say "east-north" and "west-south." They always speak of the mariner's compass (their own invention) as pointing to the south. Here, a mother shows her affection for her child by kissing it; a Chinese mother smells of it. We locate the intellect in the brain; they in the stomach. We pay our physicians when we are sick; they pay the doctor while they are well, but as soon as they get sick the pay stops. Here, men kill their enemies in revenge; a Chinaman gets "sweet revenge" by killing himself. They mount a horse from the right side, and when they want him to go they say "Whoa!" The men ride sidewise and the women astride. We use lanterns on a dark night, they carry more lanterns at full moon than at any other time. We place a candle in a candlestick; they put the candlestick in the candle. Their detectives sound a "tom-tom" at night to give thieves and rogues notice of their coming. We ride in railroad cars, they in wheelbarrows. We draw canal boats with horses; they with men. We sell wood by measure; they by weight. We vaccinate in the arm; they in the nose. We use a soft pillow, they a block of wood. Our store signs are horizontal; theirs are perpendicular. They launch ships sidewise, ring bells from the outside, and actually turn their screws in the opposite direction from ours.

AN IMMENSE WATER POWER.—Experts say that Broad River at Anthony Shoals, Georgia, has a volume of 19,000,000 cubic feet of water per minute, and its velocity is 175 feet per minute, its fall in a mile and a quarter being ninety-two feet. The horse-power is calculated to be 37,286, while Lowell, the finest developed water-power in the United States, has only 16,000 horse-power.

SEATED once with the driver of a stage-coach, Phil Sheridan, in replacing his cigar, put the lighted end in his mouth. He winced and shook his head. The Jehu managed to get his head turned from the wheeler and said: "From the fuss that they was makin' about ye I never thought ye was afraid of a little foire like that."



## PATENT METALIC-FASTENED WIRE CLOTH BINDING.

Since the general adoption of the roller or gradual reduction system of milling, millers have felt the need of some simple, cheap and durable means of attaching the wire-cloth covering to the break or scalping reels. If simply tacked on the ribs the constant vibration of the wire soon causes the cloth to break at the edge of the rib or at the heads of the ticks. If made up in the ordinary manner with silk or linen threads, the wire soon cuts out the thread, in either case causing the reels to leak and seriously interfering with their efficiency, while the cost of repairs is a serious item. The simple device represented by the accompanying cuts furnishes a complete solution of the difficulties heretofore encountered. The wire cloth is bound either with ticking or heavy cotton duck held in place by wire staples. This binding is far more durable than binding fastened with linen or silk stitches, as the wire stitches will not cut as they pass through the wire cloth, or chafe or wear off from constant contact with rough stock. Wire cloth bound in this manner will last longer, is more easily attached to the reels, and will do better and more even work because it can be stretched thoroughly, making the meshes square and even. The binding being flexible prevents the wire from breaking from continual vibration. Messrs. Edw. P. Allis & Co., of the Reliance Works, Milwaukee, Wis., are the exclusive owners of the patent covers, this method of attaching wire cloth to scalping reels, screens, etc.

## SMITH vs. GOLDIE.

In the Supreme Court of Canada, Tuesday, the 19th day of June, 1883.

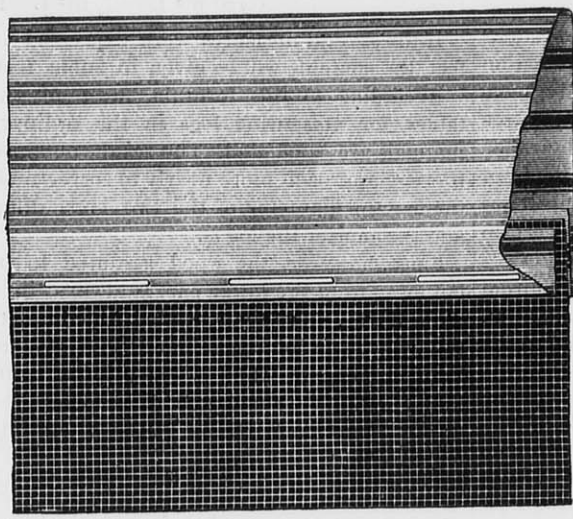
Present:—The Honorable Sir William Johnstone Ritchie Knight, Chief Justice, the Honorable Mr. Justice Strong, the Honorable Mr. Justice Fournier, the Honorable Mr. Justice Taschereau, the Honorable Mr. Justice Gwynne.

Between George Thomas Smith, et al, appellants (plaintiffs) and John Goldie, et al respondents (defendants).

The appeal of the above named appellants (plaintiffs), from the order of the Court of Appeals for Ontario made in this cause the 30th day of June, 1882, and dismissing the appeal of the said appellants from the decree of the Court of Chancery made the 23d day of June, 1880, coming on to be heard before this Court on the 28th, 29th and 30th days of November last, in the presence of counsel as well for the appellants as for the respondents. Whereupon, and upon hearing what was alleged by counsel aforesaid, this Court was pleased to direct that the said appeal should stand over for judgment, and the same coming on this day for judgment this Court did therefore declare, order and adjudge, that the said appeal should be and the same was allowed.

And this Court did further declare, order and adjudge that the appellants (plaintiff), George Thomas Smith, was the first and true inventor of the invention described and claimed in the Letters Patent No. 2,257, mentioned in the first paragraph of the appellant's (plaintiffs) re-amended bill of complaint, that the said Letters Patent are good, valid and in full force and effect, and that the appellant (plaintiff), George Thomas Smith, has been from the date hereof, and still is, entitled thereunder to the exclusive right, privilege and liberty of making, constructing and using, and vending to others to be used, the invention in the first paragraph of the said plaintiff's re-amended bill of complaint described as follows: "In combination with the bolting surface of a flour-bolt, through which a current of air is made to pass by means of an air chamber and fan or its equivalent, a brush, or a series of brushes arranged to traverse the under surface of said bolt, substantially for the purpose set forth in the said Letters Patent, and the specifications thereto, of clearing the bolt of particles of flour adhering thereto," subject to such rights as his co-plaintiffs now have under the assignments and licenses in the said bill of complaint set forth. That the patents 1,739 and 1,793 in the respondent's (defendant's) answers mentioned were never valid, and form no defence to the appellant's (plaintiffs) said patent, and that the machines constructed by the respondents (defendants) in the pleadings mentioned, are infringements of the said Letters Patent of the said George Thomas Smith, and that the appellants (plaintiffs), are entitled to an injunction restraining the said respondents (defendants), and each of them and theirs, and each of their servants, workmen and agents during the continuance of the Letters Patent or any extension of them, from making, constructing,

using or vending to others to be used, any machine containing the same combination as the said machines in the pleadings mentioned, or only colorably differing therefrom, or any other machine constructed according to or involving the appellant's (plaintiffs) said patented invention, or only colorably differing therefrom, or being an infringement of the appellant's (plaintiffs) said patent, and from in any way infringing the appellant's (plaintiffs) said patent, or causing or procuring the same to be infringed. And that the appellants (plaintiffs) are entitled to have the respondents (defendants) discover upon oath all machines in their possession, or made, used or sold by, or for them, or either of them, containing the combination hereinbefore set forth in infringement of the plaintiff's patent and of the amounts received therefor, and of the cost thereof, and of the names of the purchasers thereof. And that the appellants (plaintiffs) are entitled to an inquiry and to be paid the amount found due upon such inquiry, for damages sustained by the appellants (plaintiffs) or any of them, from the making, constructing, using, selling or vending to others to be used, by the respondents (defendants), or any of them, and by the persons to whom they have sold, given or let the same, of any of the said machines containing the combination hereinbefore set forth in infringement of the said patent of the appellant George Thomas Smith since the filing of the appellant's (plaintiffs) said bill of complaint, and for six years previously, and also of the amount of the profits received by the respondents (defendants) from the making, constructing,



SHOWING HOW CLOTH IS ATTACHED TO TICKING.



SECTIONAL VIEW SHOWING WIRE STAPLES

using and vending to others to be used, the said, or any machine infringing the plaintiff's said patent, namely: any machine or part of machine containing the combination hereinbefore set out from the date of the filing of the said bill, and for six years previously. And that the appellants (plaintiffs) are entitled to be paid the costs of this suit including the costs incurred by them in the Court of Chancery, or Chancery Division of the High Court of Justice for Ontario in the Court of Appeals for Ontario, and also in this Court forthwith, after taxation thereof. And for the purposes aforesaid this cause is referred back to the Chancery Division of the High Court of Justice for Ontario, to make such orders and directions as may be necessary. And this Court doth further order that the Registrar of this Court do deliver up to the appellants and respondents the exhibits filed or deposited herein by them respectively. Certified a true copy.

[Signed].

ROBT. CASSELS,  
Registrar.

## THE WOBURN EXPERIMENTS.

The Royal Agricultural Society of Great Britain publishes the results of a series of tests made to show: 1, the effect of withholding all fertilizers from cereals; 2, the influence of various artificial fertilizers and of barnyard manure; 3, comparative manurial value of decorticated cotton cake and maize meal; 4, the unexpended virtue of artificial fertilizers. The experiments were continued seven consecutive years. The grains were wheat and barley; and the ground was divided into plots of a quarter of an acre, and every test on wheat was duplicated for barley.

Two plots, I and VII, were unmanured. Allowing for a difference in seasons, it may be said that their yield gradually diminished, beginning with 22½ of wheat per acre, in 1877, decreasing to 9.6, and averaging 16 bushels for the whole period.

Plot II received annually 200 pounds of ammonia salts; its average return for the time was 23½ bushels.

Plot III was treated in a similar way, the nitrogenous supply being furnished by 275 pounds nitrate of soda instead of the ammoniacal salts, and the result was an average of 22.2 bushels; although in five out six seasons the yield was somewhat more from the ammonia salts than from the nitrate of soda. The latter, especially in wet seasons, exerts more energy on the straw than on the berry.

Mineral fertilizers—sulphates of potash, soda, and magnesia, and superphosphate of lime—applied to plot IV produced no appreciable results. The yield was less than that of the unmanured plot I for the first two years, and but little larger the remaining years; while the barley product was really less; the figures for barley being 22.1 bushels against 27.5; the present color of the growing plant is inferior to all of the other plots. Plot V received the same mineral manure to which was added 200 pounds of salts of ammonia; and plot VI was similarly treated, receiving the equivalent of ammonia from 275 pounds of nitrate of soda. Plots VIII and IV were manured, as were V and VI, except that the nitrogenous elements were doubled, 400 pounds of salts of ammonia and 550 pounds of nitrate of soda. The results from V and VI were but one-fifth of a bushel per acre apart in favor of the ammonia salts, the average being 29.1 bushels and 28.9. The barley plots showed a difference in favor of the soda, the average being 42.6 against 41.2 bushels, the slight divergence indicating that nitrate of soda is more beneficial to barley, and salts of ammonia to wheat. The plots to which were applied the double quantity of ammonia appear much like and remarkably well, the average product being from the ammonia salts 36.2 bushels, and from the nitrate of soda 33.8. A similar result is noted on the barley plots, the difference—not over half a bushel per acre—being also in favor of the ammonia.

Plot X received four tons of good farm yard manure annually, and produced at the rate of 18 bushels per acre. The manure was doubled on Plot XI, and the return was 22.6 bushels—much less in both cases than from an equal amount of ammonia in the shape of the salts or of nitrate of soda.

Tests of the comparative value of manure from decorticated cotton cake and from maize meal show, contrary to the general belief, that the meal has a greater value, and while the difference is slight, give rise to the question: Are English farmers throwing away money on cotton cake?

The experiments conducted to determine whether or not artificial manures were of value to land beyond the season in which they are applied were of peculiar interest to the tenant farmer as well as to the landlord. The tests were thorough and decisive. Plots VIII and IX received each for five years 200 pounds sulphate of potash, 100 pounds sulphate of soda, 100 pounds sulphate of magnesia, and 3½ cwt. superphosphate of lime. In addition, it will be remembered, was, in one case, 400 pounds salts of ammonia, and in the other, 550 pounds nitrate of soda. In 1882 one-half of each of these plots was left unmanured, the other half receiving the regular amount. The crop on the unmanured half of Plot VIII was 13.3 bushels per acre, or one bushel more than the unmanured Plot I, which was 12.3 bushels, and 3 bushels less than the average of the unfertilized plots. The manured half produced 43.5 bushels per acre. The test is still in progress, the half plots being interchanged, and the appearance indicates a repetition of last year's result. The unmanured half looks no better than the plots to which no fertilizer has been applied. The same effect was noted on Plot IX, the unmanured portion showing no traces of its generous treatment in the previous five years.

In brief, the experiments show that mineral manures alone do not increase the product of wheat or barley; that the increase is due to nitrogenous matter; that a quantity of farm-yard manure supposed to possess an equivalent in ammonia to ammonia salts, in fact displays much less virtue; and that artificial fertilizers lose all their power before the second crop appears; and also that manure resulting from feeding corn meal is worth quite as much as that from cotton-seed cake.

A BALLON UNDER THE SEA.—Our Mar-seilles Correspondent writes:—The Inter-

national Exhibition of Nice is reserving some wonders for the foreigners who may propose to pass a portion of the winter of 1883-84 upon the borders of the Mediterranean. One of these wonders is a balloon which its inventor, M. Toselli, calls "the observatory under the sea". It is made of steel and bronze, to enable it to resist the pressure which the water produces at a depth of 120 mètres. This "observatory under the sea" has a height of eight mètres, and is divided into three compartments. The upper apartment is reserved for the commander, to enable him to direct and to watch the working of the observatory, and to give to the passengers the explanations necessary as to the depth of the descent, and what they will see in the depths of the sea. The second apartment, in the centre of the machine, is comfortably furnished for passengers to the number of eight, who are placed so that they can see a long distance from the vessel or machine. They have under their feet a glass which enables them to examine at their ease the bottom of the sea, with its fishes, its plants, and its rocks. The obscurity being almost complete at 70 mètres of depth, the observatory will be provided with a powerful electric sun, which sheds light to a great distance in lighting these depths. The passengers have at their disposal a telephone, which allows them to converse with their friends who have stopped on the steamboat which transports the voyagers to such places as are known as the most curious in the neighborhood. They have also handy a telegraph machine. Beneath the passengers an apartment is reserved for the machine, which is constructed on natural principles, that is to say, as the *vesse* of a fish, becoming heavier or lighter at command, so as to enable the machine to sink or rise at the wish of the operator.—*The British Mail*.

## ITEMS OF INTEREST.

WIRE DRAWING.—It was not until some time after 1300 that wire-drawing became an art. A race of wire-drawers, who made iron wire by hand and afterward by water power, then sprang up in Germany and became famous in Europe. Wire-making was introduced in England, about the middle of the fifteenth century. This industry was commenced in the United States at the beginning of the present century, and it is needless to say that it has grown to enormous proportions within the past few years.

TO MEASURE THE FLOW OF STREAMS.—The *Manufacturer and Builder* gives the following very simple method: To measure water roughly in an open stream, take from four to twelve different points in a straight line, across the stream, and measure the depth at each of these points, and adding them together, divide by the number of measurements taken. This quotient will give you the average depth, which should be measured in feet. Multiply this average depth by the width in feet, and this will give you the square feet of cross section of the stream. Multiply this by the velocity of the stream in feet per minute, and you will have the cubic feet, per minute, of the stream. The velocity of the stream can be found by laying off 100 feet on the bank, and then throwing a board into the stream at the middle, note the time required to pass over the 100 feet, and dividing the 100 feet by the time and multiplying by sixty gives the velocity in feet per minute, at the surface. The velocity at the center is only eighty-three per cent. of that at the surface, and so only eighty-three per cent. should be calculated. For example, suppose the float passes 100 feet in ten seconds, this divided by ten and multiplied by sixty (seconds in a minute), gives 600 feet per minute as the velocity, and eighty-three per cent. of this gives 498 feet per minute as the velocity of the stream at the center, and the area of the cross section, multiplied by this will give the number of cubic feet per minute in the stream.

"Was I in the wah, Boss? Just listen at dat; was I in the wah? Why, I seed every battle dat was fit, and knowd Lee and Stonewall Jackson and Jeff Davis and all dem jis as well as I does dat nigger you see in dar shinin' shoes. General Lee particler, he thought a great deal of me, and when I'd ax him to giv me a furlough he low'd, 'Bob, I can't spare you. I'm agwine to fight dat battle what I talked to you about, and I'm bound to have you by me. But, howsever, if you'll be back in four days certain sure, yo can go.' Sure 'nough I'd be comin' back into camp whistlin' at night, and Lee he'd say to Stone wall Jackson, 'Dere's Bob coming back now; I know him by his whistle. It's all right now; we can go ahead.'"



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MILWAUKEE, AUGUST, 1883.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER. You will thereby oblige not only this paper, but the advertisers.

## Flour Mill Directory.

CAWKER'S AMERICAN FLOUR MILL DIRECTORY shows that there are in the United States 21,356 flour mills and in the Dominion of Canada 1,488. The mills in the United States are distributed as follows:

Alabama, 388; Arizona, 17; Arkansas, 234; California, 209; Colorado, 52; Connecticut, 309; Dakota, 44; Delaware, 96; District of Columbia, 7; Florida, 81; Georgia, 514; Idaho, 18; Illinois, 1258; Indiana, 1163; Indian Territory, 8; Iowa, 872; Kansas, 437; Kentucky, 642; Louisiana, 41; Maine, 220; Maryland, 349; Massachusetts, 363; Michigan, 831; Minnesota, 472; Mississippi, 297; Missouri, 942; Montana, 20; Nebraska, 205; Nevada, 10; New Hampshire, 202; New Jersey, 445; New Mexico, 28; New York, 1942; North Carolina, 556; Ohio, 1462; Oregon, 129; Pennsylvania, 2786; Rhode Island, 47; South Carolina, 205; Tennessee, 620; Texas, 548; Utah, 129; Vermont, 231; Virginia, 689; Washington Territory, 45; West Virginia, 404; Wisconsin, 780; Wyoming, 3; Total, 21,356.

The directory is printed from new Burgeois type on heavy tinted paper and is substantially bound. It makes a book of 200 large pages. The post offices are alphabetically arranged in each state, territory or province. The name of the mill, the kind of power used and the capacity of barrels of flour per day of 24 hours are given wherever obtained which is in thousands of instances. This work is indispensable to all business men desiring to reach the American Milling Trade.

Price Ten Dollars per copy, on receipt of which it will be sent post paid to any address. Remit by registered letter, post-office money order or draft on Chicago or New York made payable to the order of E. Harrison Cawker, publisher of THE UNITED STATES MILLER, Milwaukee, Wis.

GEO. BAIN has returned from his trip to Europe in good health and spirits.

THE Case Manufacturing Co., of Columbus, O., have not sold their purifier patents. All statements to the contrary were entirely "too previous."

DURING the year ending June 30, 1883, there arrived 592,324 immigrants from foreign countries, against 770,442 last year, showing a decrease of 178,098.

WE are sorry to learn that the office of *The Millstone*, at Indianapolis, Indiana, was struck by a cyclone during the evening of July 12. Damage to the amount of \$700 was the result.

If it is gold you crave, go not into the seductive path of Parnassus. Dig potatoes, build fences, sell calicoes, argue cases at the bar, doctor, if your conscience allows you to do so, your ailing fellow-creatures, preach the gospel, do anything that is necessary, but seek not wealth in literature.

THE *Farmers' Journal* says, that the losses by fire in this country since January 1, 1883, have amounted to \$34,969,727, and that we may reasonably expect that the final showing for the whole year will not be less than \$77,334,500.

CENTRIFUGAL REELS are now in great demand and they are being rapidly introduced in all parts of the country. There are twenty-five different styles of these machines manufactured and sold in Great Britain, and possibly as many more styles are being built in this country.

THE *St. Louis Miller* finds fault with us for publishing only a column and a half report of the proceedings of the Millers' National Association, at their June meeting in Chicago. We published quite enough, we think. There is sometimes such a thing as making too complete a report, as the publishers of the *St. Louis Miller* have probably learned by this time.

WE welcome to our table a new railroad journal. It is called the *American Journal of Railway Appliances*, and is published by the American Railway Publishing Co., at No. 67 Williams street, New York City. Subscription price \$3.00 per year. The first number contains 28 large pages. It is edited by Robt.

Grimshaw, M. E., and G. B. Heckle, Ph. D. We congratulate the railroad industry on the acquisition of such an able exponent of all matters of importance to its interest. P. G. Monroe, is the Western representative, and a good one.

THE total value of exports of breadstuffs for the year ending, June 30, 1883, was \$202,971,491, against \$177,001,396, for the previous year.

During the year ending June 30, 1883, there were exported 9,069,031 barrels of flour, valued at \$54,044,837, against 5,733,194 barrels, valued at \$35,396,705, for the previous year.

THE *Northwestern Miller* and The *Milling World* have been indulging in an inky fight. The *N. W. Miller* commenced the war by accusing the *Milling World* of filching original matter from its valuable columns, and republishing it without credit. The *Milling World* retaliates with the same accusation against the *N. W. Miller*.

Inasmuch as none of the ideas contained in the items referred to are at all new or original with either paper, we do not see the utility of carrying on this "bloodless war." Keep your tempers, gentlemen. Be amiable, especially while the hot weather lasts.

## MILLING MATTERS IN FRANCE.

DURING the month of July the Paris Wheat and Flour Syndicate expended about \$2,500 for the purpose of making experiments with different systems of milling and to determine, if possible, which system was best adapted to the requirements of the French public. Among the systems tried were: two roller systems, three stone systems, two disc systems and the "Carr" disintegrator in combination with stones and rolls for finishing. We have not yet heard the report of the committee having the experiments in charge. France has been very backward about changing from the stone system, but now that the subject has become one of great interest we expect to note important changes. The *Bulletin des Halles* has just issued a new milling journal which we trust will faithfully chronicle all changes and improvements beneficial to the trade.

## ESTIMATE OF THE 1883 WHEAT CROP.

S. H. Seamans, Secretary of the Millers' National Association, in his report, dated June 20, estimates the present crop as follows:

Wheat crop '82 from U. S. Agricultural Department	Indications for 1883 as reported May 16th	Present indications for crop of '83 in round numbers
California.....34,546,600	45,000,000	42,750,000
Nebraska.....14,947,200	15,000,000	16,500,000
Texas.....4,173,700	2,100,000	2,100,000
Kansas.....33,248,000	23,000,000	23,000,000
Missouri.....27,538,600	21,400,000	17,624,700
Iowa.....25,487,200	15,300,000	17,850,000
Dakota (approx.) 12,000,000	18,000,000	18,000,000
Minnesota.....37,030,500	37,000,000	35,000,000
Wisconsin.....20,145,400	18,500,000	18,500,000
Illinois.....52,302,900	25,000,000	23,536,000
Kentucky.....17,250,000	12,400,000	11,200,000
Tennessee.....8,971,200	6,800,000	6,280,000
Georgia.....3,812,900	3,800,000	3,400,000
Virginia.....8,311,400	8,300,000	8,300,000
Maryland.....8,655,600	9,000,000	9,000,000
Delaware.....1,200,000	1,000,000	1,000,000
New York.....12,145,200	10,800,000	10,800,000
Pennsylvania.....20,300,700	22,300,000	22,300,000
Ohio.....45,453,600	26,000,000	23,250,000
Indiana.....45,461,800	29,500,000	25,000,000
Michigan.....33,315,400	23,300,000	23,300,000
States named } 466,297,900	373,500,000	358,690,700

The above includes the principal wheat growing area of the United States, except Oregon.

Shortage indicated by our May report 93,000,000 bushels, compared with crop of 1882, as estimated by the U. S. Agricultural Department in the above named States. The present outlook in the same States indicates a shortage of 107,607,000 bushels.

In presenting this report, I desire to state explicitly that, except where otherwise stated, the figures are the results of the replies received, regardless of "impressions," theories, or other sources of information; and the "conclusions" arrived at are believed to be a fair indication of the outlook of the wheat crop at the date reported.

IN cases of externally-fired boilers many must have noticed the snapping and bubbling sound at the bottom, after pulling down the fires with a strong draft on, prior to blowing down. This is due to the "mud" (organic and inorganic substances) which has settled during the night, while the boiler was losing heat on the lower side; the water becoming comparatively quiet on the inside. Under such circumstances the boiler may be compared to a pot of boiling mush. The steam bubbles are made at the bottom, underneath the mass of mud, and when sufficiently buoyant, come in contact with the colder water above, and are condensed, forming a snapping noise in collapsing. This never occurs in a clean boiler, with comparatively pure water.—N. W. Williams.

(Translated from the Allg. Müller Zeitung, for the UNITED STATES MILLER.)

## PRACTICAL FORMULAS FOR DETERMINING THE CUBICAL CONTENTS OF LOGS.

In calculating the cubical contents of a log, it is generally regarded as the frustrum of a cone, and the surfaces of its sections, both at the top and bottom, forming circles. Generally speaking, this is near enough to the truth, regardless of small irregularities occurring in the trunks of all trees; but frequently the sections vary considerably from a true circle, and approach more nearly to the elliptic or other similar forms, besides which a tree is very seldom straight, but presents all manners of twists and excrescences. For these reasons all formulas for measuring the cubic contents, deduced from a supposed circular form of the sections, must be considered only approximately correct; but there being no other way of reaching a more satisfactory result without launching out into endless calculations, these formulas are the only ones of any practical value.

The frustrum of the cone formed by a log, may be considered as a cylinder with the same diameter, as the arithmetical medium between those of the two end sections; the parts cut away from the lower half, if such a cylinder was made, being supposed to be added to the upper half.

Let L be the length of the log, D the diameter of the larger, and d the diameter of the smaller end, including the bark. The diameter (m) of the log at the middle is then  $\frac{D+d}{2}$  and the cubical contents (C) of the log reduced to a cylinder.

$$C = \frac{3.14 \times m^2 \times L}{4} = 0.785 m^2 L = \frac{11}{14} m^2 L \quad 1)$$

If the several measures were expressed in feet, the contents will be given in cubic feet.

According to this formula most of the tables for measuring logs in the ordinary manuals are calculated. The results obtained thereby approach more nearly to correctness, the less the diameter of the two ends differ and the shorter the log is.

Since, however, the wood assumed to be cut away from the lower part is always, in a natural tree, more than needed to complete the cylinder in the upper part, it is evident that this formula, when solved gives a value that is a little too small, and if therefore the decimal fraction 0.785 be rounded off into 0.8, we obtain the formula

$$C = 0.8 m^2 L = \frac{4}{5} m^2 L \quad 2)$$

which is easy to remember, for practical purposes more convenient than No. 1, and sufficiently correct for all ordinary requirements.

Compared with the mathematically more correct formula for obtaining the cubic contents of the frustrum of a cone, this formula No. 2, gives a somewhat larger result, but if it should be desirable to have a formula which accurately expresses the real value of the frustrum, it is necessary to take a coefficient between 0.785 and 0.8. The arithmetical medium is 0.793, the nearest approach to which, in ordinary fractions is  $\frac{23}{29}$ , and thus the most accurate practical formula is

$$C = \frac{23}{29} m^2 L \quad 3)$$

This formula is not so convenient to handle as No. 2, but, as before said, more accurate. Since  $\frac{23}{29}$  is  $\frac{3}{406}$  larger than  $\frac{11}{14}$  and  $\frac{1}{145}$  smaller than  $\frac{4}{5}$ , the results of formula No. 3 will consequently be greater than those of No. 1 and smaller than those of No. 2.

For instance if L = 6 ft., D = 0.8 ft., d = 0.6 ft., then  $m = \frac{0.8+0.6}{2} = 0.7$  ft.

According to formula No. 1:  
 $C = \frac{11}{14} \times 0.7 \times 0.7 \times 6 = 2.3091$  Cub. ft.

According to formula No. 2:  
 $C = \frac{4}{5} \times 0.7 \times 0.7 \times 6 = 2.3520$  "

According to formula No. 3:  
 $C = \frac{23}{29} \times 0.7 \times 0.7 \times 6 = 2.3216$  "

According to the mathematically correct formula for calculating the contents of a true frustrum of a cone is  $C = 2.3351$  cubic feet; and the result of formula No. 3, therefore, comes the nearest to this value.

If it is desired to ascertain the cubic contents of wood in a log after removing the bark, and after parts which are useless, we recommend employing the following formula, which is in general use in Switzerland, viz.:

$$C = \left(\frac{P}{4}\right)^2 L \text{ cubic feet.} \quad 4)$$

P being the circumference on the surface of the median section, and L the length of the log expressed in feet.

If convenient to make use of the diameter of the median section (m), this formula (P as

is well known being equal to 3.14 m) can also be expressed as follows:

$$C = \left(\frac{3.14 m}{4}\right)^2 L = \frac{31}{50} m^2 L \quad 5)$$

If this formula is compared with No. 3, it will be seen that the refuse is  $\frac{251}{1450}$ , or from  $\frac{1}{5}$  to  $\frac{1}{6}$ . It is thus easy to deduce also practically the cubical contents of a round log from the three first formulas, by deducting 17 to 20 per cent. for bark etc., the percentage to be allowed depending, of course, on the condition of the raw log.

## FREE TRADE IN IRELAND AND INDIA.

BY JUDGE KELLEY, OF PA.

It was British diplomacy that enslaved Ireland. It was the act of Union by which the development of her mineral resources was arrested and her flourishing manufactories extirpated. He who would read a condensed statement of the effect of England's Free Trade upon Ireland will find it in Carey's "Slave Trade," or in "Why Ireland is Poor," a recent pamphlet by John F. Scanlan, of Chicago. So used are we to hear Ireland spoken of as "Green Erin," that most of us regard the island as a mere pasture field, in favored spots of which due industry may produce potatoes. And few will be prepared to hear that during a recent year the iron makers of the United States imported 10,640 tons of iron ore from Ireland. Her native resources are undeveloped; her people have been decimated by famine; her chosen representatives, having only discontent to represent, have come to be regarded as dangerous, and are untied and undicted prisoners in the jails of their native country. These blessings she owes to the fact that the articles of Union between Ireland and Great Britain, executed by Castlereagh and other Irish traitors, inflicted upon her that system of British Free Trade which is vindicated by the science based upon assumptions.

So, too, with India. Less than a century and a half has elapsed since the civilized world looked to what is now British India for its cotton goods, chintzes, and calicoes. I know of a bedspread and set of curtains which have been in the possession and use of a family of my friends for more than a century. The designs, which are floral, are exquisite in their perfection; and the blue in which they appear is as bright as though it had been imparted but yesterday. Orme, in his "Historical Fragments," says: "On the coast of Coromandel and in the province of Bengal, when at some distance from a high road or principal town, it is difficult to find a village in which every man, woman, and child is not employed in making a piece of cloth. At present much the greater part of the whole province is employed in this single manufacture. Its progress includes no less than a description of the lives of half the inhabitants of Indostan."

Under the system of national economy taught by List and Carey, Ireland's extensive deposits of coal and iron and her other mineral resources would be developed, her textile manufactories would revive, her agriculture would be diversified, and her population would increase as do the descendants of her expatriated children in other lands. The assertion that the island could, under this system, maintain 20,000,000 liberal consumers of each other's production is largely within the bounds of moderation. In 1841 her people numbered 8,175,124; in 1851 the number had shrunk to 6,552,385, and by 1881 to but 5,159,839. No language can proclaim the misery of Ireland more forcibly than do these diminishing figures. They relieve from the charge of exaggeration Thomas Francis Meagher, who, when addressing his countrymen in 1848, when the failure of the potato crop of 1845, 1846 and 1847 had caused the death of a million of their fellow-subjects by starvation and disease engendered by hunger, said:

The cotton manufacture of Dublin, which employed 14,000 operatives, has been destroyed; the stuff and serge manufactories, which employed 1,490 operatives, have been destroyed; the calico looms of Balbriggan have been destroyed; the flannel manufacture of Rathdrum has been destroyed; the blanket manufacture of Kilkenny has been destroyed; the camlet trade of Bandon, which produced £100,000 a year, has been destroyed; the worsted and stuff manufactories of Waterford have been destroyed; the ratoon and frieze manufactories of Carrick on Suir have been destroyed; one business alone thrives and flourishes, and dreads no bankruptcy. That fortunate business which the Union act has stood by; which the absentee drain has not slackened but has stimulated; which the drainage acts and navigation acts of the imperial senate have not deadened but invigorated; that favored and privileged and patronized business is the Irish coffin-makers.



[The following article, which was written for *The Miller*, London, by a milling engineer, contains many points of interest and much information of value to young American millers who have a desire to learn. The publisher of the UNITED STATES MILLER has endeavored to obtain an article something similar to this from a well known American milling engineer, but as yet he has been unable to do so. He believes he renders a valuable service to his readers by republishing from *The Miller*, London, the article as below. The article was prepared with a view to assisting millers to pass the examination for admission to the ranks of English journeyman millers.]

## STUDIES FOR YOUNG MILLERS.

## Milling Technology, with Suggested Questions for Examination Therein.

(Continued from June number.)

Those questions which we have thus far treated under the headings of *Storage, Manufacture, Motors, Machinery, Technology, Preparation, Reduction, Separation, Chemical composition and physical properties of the wheat berry, and Explosions*, are all more or less closely related to the *mechanical treatment* of the wheat and its products during the various stages of manufacture, irrespective of its *origin, variety, and value* as a raw material. England being, however, a largely importing country, it is necessary for British and Irish millers to study carefully those questions which have reference to milling in its commercial aspects, namely, the price and quality of those wheats which are imported into the United Kingdom from the various centres of wheat production.

The *available supply* of the exporting countries, the *cost of transport* to the centres of import, and the *demand* there for breadstuffs, influence the *price* of the wheat and its products, and thereby indirectly the profits of the miller. The greater the difference between the value of the raw material and that of its finished products, and the smaller the cost of production, the greater is the miller's profit. On the other hand, his profit also greatly depends on the *quality of the wheat*, in so far as this influences the *quality and value* of its finished products. If by using first-class wheats a miller can effect a *greater difference* of value between the raw material and its finished products than by using cheaper wheats of medium quality, the first will, of course, be more profitable than the latter, notwithstanding their greater cost. The quality of wheats depends much on their origin, their variety, on the soil and climate, and on the state of agriculture in the country where they are grown. All these points, therefore, deserve very careful attention from millers in order to guide them in judging the relative *milling value* of various wheats. Mr. Emmerich Pekar, in his work on "The Wheats and Flours of the World," has made very extensive and careful investigations about the relative value, from a milling point of view, of nearly 200 different wheats, and his tables and explanations, which are now being published in *The Miller*, should be carefully studied by every intelligent miller.

1. *Milling*. We have already treated the various mechanical processes which constitute the process of milling. The greater the degree of perfection which is attained in these different processes the greater will be the value of the finished products and the greater will be the realized profit, if the cost of production has not been unduly enhanced by the greater cost generally incident upon the employment of perfected machinery. It is evident that not every improvement in the value of the finished products is necessarily accompanied by increased profits, but that it entirely depends whether such improvements are effected without causing undue expenditure during production. There is no doubt that many perfections are yet possible, and that they will probably be effected in the near future; but millers should not forget that they must have due regard to the three main points which fix the profit of every mill—namely, 1, the *milling value of their wheats*; 2, the *cost of production*; and 3, the *total value of their finished products*.

2. *Supply*. The milling value of wheat, that is the relation between its *price* and its *quality*, is subject to the fluctuations which the question of *supply and demand* causes in the ruling markets. Very often wheats of good quality have an unassuming appearance, and are offered at moderate prices, thus giving intelligent millers a favorable opportunity to realize a good profit by adapting their machinery to the physical peculiarities of such wheats. This question of adapting mills to the peculiarities of certain wheats is one which deserves much more attention than has hitherto been bestowed upon it. The great milling value of Hungarian wheats was not recognized until Hungarian mills had been adapted to their physical properties. There are many other wheats offered in the English market which

would pay well for the trouble of special treatment, and indeed it may be questioned whether it is not more advantageous to treat different wheats separately, and mixing their flours instead of mixing the wheats before reduction. Of course, as far as the English market is concerned, the supply depends on the available surplus of various exporting countries, it is very changeable, and the same variety is not always obtainable at remunerative prices. But, on the other hand, there is no difficulty even for English millers to obtain a regular supply of such varieties which may be advantageously treated by the same specially adapted machinery.

3. *Variety*. England draws its wheat supply from the United States, Canada, Russia, Turkey, and the Danubian principalities, Austro-Hungary, Spain, Egypt, East India, Australia, New Zealand, Chili, &c., and it is clear that the milling qualities of these wheats vary as much as do the soil and the climate of these many countries. Generally speaking, those countries which have the greatest available surplus are far distant from England, and, as a natural consequence, the cost of transport can only be borne by the better classes of wheat. The lower class wheats will therefore generally remain in their native country, unless the native milling industry is able to produce such flour from the better wheats which will be able to bear a sea voyage, and realize more remunerative prices.

There are about 800 differently named varieties of wheat in the world but Vilmorin distinguishes only six botanical species, namely: 1. *Triticum sativum*; 2. *Triticum turgidum*; 3. *Triticum durum*; 4. *Triticum polonicum*; 5. *Triticum amyleum*; 6. *Triticum spelta*. Of these the first three are the most common, and include nearly all those wheats which are at the disposal of British and Irish millers. If there were no import and export duties in some countries, those countries in which consumption exceeds the production would naturally draw their supply from those countries, which are most favorably situated with regard to cost of transport; but as these duties are very variable it often occurs that far distant countries have greater facilities of transport than nearer ones.

It would lead us too far if we were here to attempt a description of the quality and characteristics of all those wheat varieties which are imported into the United Kingdom, nor is this the place to refer to all those circumstances which affect the importation of wheat. Excellent statistics about wheat production, consumption, and import can be found in Neumann Spellers' reviews, and also in Emmerich Pekar's book.

(a) Those countries which under average circumstances *import* wheat are: Great Britain and Ireland, France, Holland, Belgium, Germany, Austria, Italy, &c.

(b) Those countries which, under average circumstances, *export* wheat, are: The United States of North America, Canada, Chili, New Zealand, Australia, East India, Egypt, Turkey and the Danubian Principalities, Russia, Hungary, Denmark, &c.

(c) The production of wheat generally equals consumption in the following countries: Spain, Portugal, Sweden and Norway, the South American Republics, Mexico, &c.

(d) The principal divergent characteristics of wheat are its color, its strength, its hardness and its shape and size.

(e) The following are the divergences of the principal wheats which are imported into the United Kingdom:

(a) *United States*.—1. Oregon, large white wheat, soft.

2. Californian Nos. 1 and 2, large white wheat, a little harder than Oregon.

3. Minnesota, hard and soft red wheat of best quality.

4. American winter wheat, soft red wheat, comparatively strong.

5. American spring wheat, mostly hard red wheat, good strength.

6. Michigan, white soft wheat of good quality.

(b) *Canada*.—Fine white soft wheat from British Columbia, and fine white and red wheats, harder, from Manitoba.

(c) *Chili*.—Hard and soft white wheats.

(d) *New Zealand*.—Soft white wheat.

(e) *Australia*.—Fine large wheat, strong and heavy.

(f) *East India*.—1. Calcutta club wheat, soft white wheat No. 1 and No. 2.

2. White Bombay, soft and hard, white wheat, large.

3. Soft, red Calcutta, small.

4. Hard red Calcutta, small.

5. Hard and soft red Bombay, small.

(g) *Egypt*.—White and red wheats, soft and hard, rather dirty.

(h) *Turkey and the Danubian Principalities*.—Various red wheats, hard and soft, generally thin and strong wheats, some of them fine.

(i) *Russia*.—1. Kubanka, large hard red wheat, very strong.

2. Saxonska, soft red wheat, very strong.

3. Berdianski, large red wheat, very fine.

4. Odessa Ghirka hard, small, red wheat, very strong.

5. Taganrog, very hard, small, red wheat, strong.

6. Sandomirka, very fine red wheat, very strong.

7. Polish, red and white, large, soft and hard wheat.

(k) *Hungary*.—Generally red, large, hard wheat, very strong.

(l) *Denmark*.—Soft red and white wheats, large.

(f) Of the above-mentioned countries the following will probably increase their exportation:—The United States, Canada, Australia, and New Zealand, because their wheat acreage increases in a far greater degree than their consumption. In the other countries the home consumption is continually increasing without a corresponding increase in the wheat production; their available surplus will, therefore, probably become smaller.

4. *Transit*.—The methods of carrying wheat from the interior to the exporting seaports have great influence on the cost of transport. The numerous and capacious elevators and the great facilities for water carriage, as well as the low freights on railways, enable America to compete successfully with other countries which are much nearer to the United Kingdom. In many countries the grain cannot be conveyed otherwise than in sacks, whereas in America it is carried *in bulk* on the railways, unloaded by the elevators, and reloaded into the ships which carry it in bulk to the United Kingdom.

(a) The principal ports of importing and exporting countries are—

1. *Export*.—New York, New Orleans, San Francisco, Quebec, Valparaiso, Adelaide, Melbourne, Calcutta, Bombay, Alexandria, St. Petersburg, Odessa, Danzig, &c.

2. *Import*.—London, Liverpool, Bristol, Hull, Glasgow, Dublin, Belfast, Bordeaux, Hamburg, Rotterdam, Amsterdam, Antwerp, Lissabon, Marseilles, &c.

(b) The relative cost of transit from the exporting countries is variable, but the following will serve as examples:

COST OF WHEAT CARRIAGE PER BUSHEL.	
San Francisco to England.....	36 to 39 cents.
The Far West to Atlantic Harbor.....	40 "
New York to Liverpool.....	10 "
Chicago to Liverpool.....	19 "
Bombay to England.....	13 "
Calcutta to England (via Suez).....	18 to 29 "
Calcutta to England (via Cape).....	15 to 20 "
Australia to England.....	21 "
Buenos Ayres to Havre.....	16 to 24 "
Odessa to England or Antwerp.....	13 to 28 "
Brody to Hamburg.....	31 "
Ibralla to London.....	17 "
Galeta to Hamburg.....	51 "
Budapest to Hamburg.....	39 "
Budapest to Liverpool (via Flume).....	28 "
Lemberg to Frankfurt-on-Maine.....	23 "
Vienna to Frankfurt-on-Maine.....	22 "
Vienna to Flume.....	26 "
Vienna to Trieste.....	21 "

(c) Oregon wheat intended for the United Kingdom would be sent by rail to San Francisco, thence per Southern Pacific Rail to New Orleans, where it would be unloaded and conveyed into the ship by the elevators and carried per steamers or sailship to Liverpool, Bristol or London.

(d) A sea voyage affects the quality of the wheat in so far as the latter becomes more moist. It has been asserted that in some cases the increase of weight caused by this additional moisture is sufficient to pay for the cost of transit.

(e) Reliable information on the import and export duties on *wheat and flour* in the various foreign countries and in British Colonies is very scarce.

The statistical tables in the Blue-books of 1880 and 1881 do not mention *wheat and flour* among the articles which pay duty in foreign countries; they only give these duties for the British possessions. The following are some of them:—

(A) Import duties: India free; New South Wales, free; Victoria, 1s. per 100 lbs; South Australia, free; Western Australia, 10 per cent.; New Zealand, 9d. per 100 lbs; Queensland, 6d. per 100 lbs.; Cape of Good Hope, 8d. per 100 lbs.; Canada, 7½d. per 100 lbs.

(B) Morocco is perhaps the only country in which, from time to time, an export duty on wheat and flour is levied.

(f) The effect of *import duties* on the corn trade is an immediate rise in price. The home producers are benefitted thereby, but the home consumers have to pay more for their staff of life. Import duties may, in some cases, disable foreign competition, but they do not benefit the country which imposes them, if it depends largely on these imports. *Export duties* have the effect to keep the wheat

at home, and, when continued, they would tend to equalize home production with the requirements of home consumption.

Having thus returned an answer to all those questions on milling technology which were suggested in *The Miller* of July 3d, 1882, I should like to state that I do not desire to create the impression that my answers are so correct and so terse that they could not be improved upon. I have only endeavored to give young millers an illustration how those questions *might* be answered, and in some cases I have added explanatory remarks in order to show the reasons which induced me to come to those conclusions which I have detailed. It must therefore be understood that these answers are influenced by my personal opinion, and although they are based upon practical experience and patient study, they must not be taken for more than they are worth. Every young miller who intends to submit himself to the coming milling examinations should endeavor to form his own conclusions on the basis of his own practical experience and his daily observations in the mill, with due regard to such information which he may be able to obtain from the milling press and from milling books. It is much to be regretted that this latter source of information, at least so far as English milling books are concerned, is still so limited. This is one of the weak points in the otherwise admirable scheme for the advancement of technical milling education, as inaugurated by the Association of British and Irish Millers.

It is not difficult to obtain full information on the five *science subjects* which are demanded by the Science and Art Department. There exist very many excellent text-books on the subjects, and the books can be had at low prices. Besides, there exist in nearly every place facilities for hearing lectures on these subjects from persons who have devoted their life to the study of such sciences.

But there is no *text-book on the manufacture of flour* in which its principles and fundamental laws are treated in the same comprehensive and clear manner as is done in the many text-books on the steam engine, on chemistry, on the manufacture of iron, &c., &c., and there are no lecturers who have specially devoted themselves to milling technology.

The secretary of the Association of British and Irish Millers said, during the meeting on July 31, 1882, that owing to the small amount of funds at their disposal they were unable to form a Millers' College, but that they had been able to induce the City and Guilds of London Institute to hold certain milling examinations under certain conditions. Now, although this is a very good beginning, and will, I hope, be followed with better results than the last bakers' examination, I have taken this opportunity to point out some of the difficulties which milling students have to contend with in preparing themselves for these examinations; and in order to remove these difficulties I should like to submit the following suggestions to the attention of the Council of the Association.

1. Would it not be possible to offer a substantial prize, or several prizes for a *Text-book on Milling Technology*, in order to encourage English milling literature?

2. Would it not be possible to induce the City and Guilds of London Institute to engage a competent person, perhaps the author of the prize text-book, to hold *Lectures on Milling* in their new Finsbury Technical College, so that young millers might there acquire their technical education?

I am sure the achievement of these objects does not require any great funds, and they are the easiest and best means towards the accomplishments of that desirable object, the institution of a *Millers' College* where millers can acquire a thorough technical education after they have served their time and have acquired sufficient *practical knowledge* to form a sound basis for their subsequent acquirements.

(To be continued.)

A good boiler, properly proportioned, and not driven beyond its normal rating, and with good feed water, when there is no provision made for super-heating, should give practically dry steam, that is, not containing above three per cent. of moisture. If there is a super-heating surface attached to the boiler, the steam may not only be perfectly dry, but heated to a temperature considerably above the temperature due to its pressure, while with a boiler having insufficient steam space, certain kinds of bad feed water, or which is driven too hard, the amount of water carried over with the steam may be 10 or 15 per cent.



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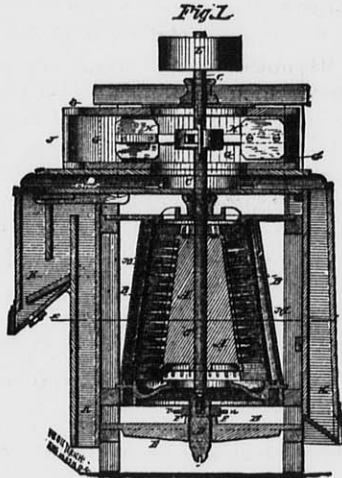
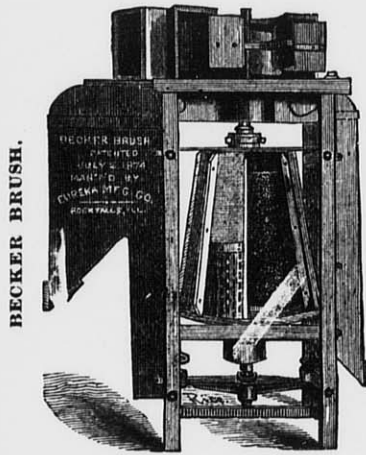
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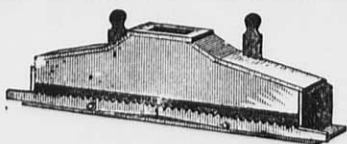
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#### CONSTRUCTION OF HEAD-RACES, FLUMES, WHEEL-PITS AND TAIL-RACES.

Under the above heading we propose to make some practical remarks for the benefit of any who will avail themselves of our experience and observation. The importance of large and sufficient canals in the improvement of water powers are appreciated by but comparatively few who are using water as a motive-power, consequently in very many instances the subject receives but little consideration. It is almost invariably the case that much valuable power is lost in consequence of insufficient head-races, flumes, wheel-pits, and tail-races. The first thing that should be considered, where a water-power is to be improved, is, how many horse-power will be required or can be obtained, and how many cubic feet of water per minute will be required to produce the requisite number of horse power with the fall to be employed. When this is determined, the canals and wheel-pits should be constructed of sufficient size to allow the water to pass to and from the water-wheels at a velocity not to exceed one and a half feet per second, and no tail-race should have less than two feet of dead-water before the wheels are put in motion. Where a very large amount of water is to be employed it would be better to have at least three or four feet of dead water the entire length of tail-race. By having this depth of water in the tail-race, as soon as the water is discharged from the wheels it displaces the dead-water, and consequently there is but little, if any, loss of head. In order to make our point plain, we will suppose the bottom of the tail-race is only sunk to the level of the water in the river or receiving canal; the consequence would be, the water discharged from the wheels would rise in the tail-race in proportion to its width and quantity of water used, while if there was the desired depth, as before stated, the water discharged from wheels would displace the dead water, and at once conform to the general level of water in the tail-race and river. We very frequently see two or three feet head lost in water-powers from the want of proper consideration.

We will suppose we have a fall of twenty feet, and wish to employ three hundred and eighteen horse-power, which will require one 60-inch American wheel. On the left hand of the table of horse powers will be found the diameter of wheels in inches, and in the top a column of figures which indicates the head in feet, and, as in this instance, we wish to use a 60-inch wheel, we will follow the column of figures opposite sixty until intersecting the column under twenty feet head, where will be found ninety-two revolutions of wheel, 7209 the number of cubic feet of water discharged per minute, and 218.87 the number of horse-powers produced. For this amount of water flowing at the velocity named, the cross section of canals would be 80.1 square feet; thus— $80.1 \times 1.5 \times 60 = 7209$  cubic feet per minute. The cross sections of all the passages to and from the penstock or flume in which the wheel is placed should equal 80.1 square feet; this will, of course, include the opening under the penstock for the water to escape after it leaves the wheel.

Practice demonstrates that it is advisable to have as much room to pass the water from the wheels as there is to get it to them, and there is no argument that disproves the correctness of this theory, as the same water passed through the wheels has to be passed off below them, although this can not in all cases be done without more expense than most persons are willing to incur. But as this is a subject of great importance, we here give a definite rule which will serve as a guide in determining what the capacity of canals should be in order to secure the best results from the use of water for any number of horse-power under a given head. By referring to the table of horse-powers and discharge of water (which we have carefully prepared), it will be seen what size wheel or wheels will be required to produce the requisite horse-powers under the head to be employed, and in the same column above the horse-powers will be found the number of cubic feet discharged per minute, from which calculations can be made what the cross section of canals would be in square feet.

We have given this example which establishes a data showing that for any diameter of wheel or wheels, under any head, there should be one square foot of cross section in flume of tail-race for every ninety feet of water used per minute.

We have given this proportion, which is large enough to secure the best result from

the use of water applied to a turbine. The question is often asked what would be considered the best size to make flumes to supply water-wheels of a given capacity. This will anticipate the above question.

The construction of large flumes are of great advantage, as when the head is reduced from any cause there may still be sufficient capacity to supply the demand. Great advantage will also be found in long-continued cold seasons, when ice is formed so as to seriously obstruct the flow of water.

It is desirable to bring the water as near a state of rest as possible, before entering the wheels, and as near the same condition after passing the wheels. There are many who are using water as a motive power, and setting turbine wheels, who have had a very limited experience, and are not aware of the importance of proper application, and believe that comparatively small water-ways will answer fully as well as what is absolutely necessary in order to utilize a good percentage of the full power of the water employed. Our object is to utilize all the power we can, rather than to sacrifice power in order to save a small outlay in the construction of sufficient inlets and outlets for water. It is very seldom that wheel-pits and tail-races are made with the comparative capacity we have named. One-half the cross-section in wheel-pits and tail-races is quite common, and from all appearances turbines under such conditions may give good satisfaction, especially when the full power of the wheels is not required. But at the same time the same wheels would produce more power with the same amount of water were all the conditions as favorable as they could in many locations be made with a very small additional expense.

#### MACHINE FOUNDATIONS.

(By M. POWIS BALE, M. E.)

The proper fixing on adequate foundations has much to do with the satisfactory performance of wood-working machinery, and in the case of high-speed machines, especially those with a reciprocating motion, the jar or vibration is absorbed in a very considerable degree by the foundations as well as by the framing of the machine. In the case of machines working on the rotary principle, little difficulty is experienced as regards foundations, the stress being as a rule easily absorbed by well-apportioned framing, that is on the assumption that the working parts are all truly balanced and fitted.

In the case of vertical saw frames it has been attempted to do away with the ordinary masonry foundation by mounting the frame of the machine on an extended cast iron bed-plate, or in light deal frames by casting the main framing of the machine in one piece. The extended bed-plate system is not to be recommended except in cases of necessity, where the foundations are bad from the ground being marshy or from overflow water in tidal rivers or such like causes, as the vibration is not by any means done away with; by using this form of bed-plate, small deal frames may be made very strong and compact by casting the frame solid, but they are somewhat more difficult to make and repair.

Where much water that cannot easily be got rid of is found, and where it is necessary to put in a deep foundation, especial means must be taken to get, in the first instance, a solid basis. Where the weight to be supported and the vibration to be absorbed are considerable, as in the heaviest class of log-sawing frames, we have found a series of English elm piles to make a durable and satisfactory foundation. The depth they should be driven and the distance apart must depend on the action of the machine, the weight of the load, and the nature of the soil. The tops of the piles should be sawn off level and sleepers or planks fixed transversely on the top of them; the piles and sleepers should be creosoted. Where the ground is moist only, and much concrete is unnecessary, a good plan is to ram the substratum firm, and cover with a layer of broken stone or slag to about 6 inches in depth; into this layer pour melted asphalt; this binds together in one solid mass, prevents damp, and gives a good foundation for the subsequent masonry.

The vibration of saw frames is lessened considerably by counterbalancing their reciprocating parts, and by arranging the crank-shaft as near the base of the machine as possible, and a fly-wheel or wheels are found to add considerably to their steadiness in working.

The vibration of a machine may be also considerably lessened by the introduction of a sheet of lead between the base of the machine and the masonry for light machines; on an upper floor a thick sheet of felt may also be used with advantage.

As regards the masonry employed for foundations, stone is the best, and offers a better resistance than brickwork, but its cost is somewhat of a bar to its general adoption. A deep bed of concrete, if well laid will also be found very serviceable. The strength of a stone foundation depends greatly on the quality of the stone employed, and also whether the size and shape of the blocks used are in proportion to the strength of the stone; the mortar, too, used for this purpose should be of the finest quality, and the stones accurately dressed. If the dressing is badly done, and the pressure is unequal and severe, they are liable to fracture. Blocks of stone of long dimensions in proportion to their thickness should never be used, as with heavy machines with a reciprocating motion, with a positive stroke or dead blow, the risk of breakage is considerable. A safe rule is to make the length of the block—say—about three times the thickness, and the width one and a half-times. Great care should be taken that the masonry is accurately levelled, and set as nearly perpendicular to the direction of the stress as possible. The top blocks should be clamped together, and the joints filled in with molten lead, as excessive vibration and stress is in a great measure overcome by the weight and the solidity of the foundations; the framing of the machine should be made to combine as far as possible, and made integral with it.

The quality of the work turned out and the longevity of the machine depend also more on the stability of the foundations than is generally imagined. The foundation bolts should pass entirely through the masonry, and either be cemented in their places, or, should they not be cemented they will be found less liable to work loose by putting a piece of hard wood between the plates and the masonry. Wood-working machines with a reciprocating motion should never be put on an upper floor, except those of the very lightest class. In machines with a rotary motion, and the straining forces acting horizontally to the axis of motion, brickwork or timber foundations are usually sufficient, but for the heaviest class of machines such as rack-saw benches or planing machines, if the earth is at all unsound, concrete or rubble masonry should be used; for heavy log frames, steam mortising machines, etc., ashlar masonry is undoubtedly the best. Any reasonable cost incurred for perfect foundations is soon repaid by increased steadiness in working, and consequently improved quality of output. As a rule, inferior production in machines with a rotary motion is directly traceable to inferior workmanship or design in the machine, loose bearings, weak spindles, improperly sharpened cutters, insufficient feed, or unbalanced cutter blocks; but it cannot be denied that, in the first instance, weak or insecure foundations contribute largely through imperfectly absorbing the vibration, to bring about some of these results, especially in machines with their framings put together in sections. If brickwork foundations are used, the bricks employed should be hard and well burnt, and Portland cement should be used; this is especially necessary in damp situations.

As regards brick foundations for machinery, Mr. Trautwine, who has experimented a good deal with building materials, says on this point that a rather soft brick will crush under a weight of 450 to 600 lbs. per square inch, or about 30 to 40 tons per square foot, whilst a first-rate machine-pressed brick will require from 300 to 400 tons per square foot. This last is about the crushing limit of the best sandstone, or two-thirds as much as the best granites or roofing slates. But masses of brickwork will crush under much smaller loads than single bricks. In some experiments referred to by this author, small cubical masses only 9 inches on each side, laid in cement, crushed under 27 to 40 tons per square foot, others with piers 9 inches square and 2 feet 4 inches high, in cement, only two days after being built required 44 to 62 tons per square foot to crush them. The same authority, however, is careful to add the statement that cracking and splitting usually commence under about one-half the crushing loads. To be safe, he recommends that the load should not exceed one-eighth or one-tenth the crushing load; so also with stone if bricks are used as foundations. For some kinds of wood-working machinery, such as steam mortising machines and saw frames, where there is what we may call a constant punching action going on, we certainly think the dead weight should not exceed about one-sixth the crushing load.

CASKS AND BARRELS OF STEEL.—An exchange says: A Wolverhampton firm have turned their attention to the manufacture of

casks and barrels of steel. The two edges of the sheet steel which forms the cask are brazed together in such a manner as to justify the title of "seamless," which the patentees have applied to these productions. The head of the barrel is also riveted to the body, so as to leave no seam, and the end rims are shrunk on hot, thus making a very solid end, while, at the same time, the rims are thick enough to give a good purchase to the grappling-hooks of hoists and cranes for loading and unloading purposes. The bush for the tap does not project beyond the rim, so that the nozzle is not liable to be knocked out and injured. The casks are more durable than wood, less bulky and lighter—an 18-gallon steel cask weighing some ten pounds less—a not unimportant consideration as regards transit. In point of shape the steel barrel is exactly that of a well-formed wood one, the bulge of the belly allowing of its being easily rolled along, and better managed by one man than drums can be by two.

#### MISDIRECTED EDUCATIONAL TRAINING.

The evils of the misguiding of educational training of youth is seen in the fact that it is no uncommon thing to find men who have been graduated at the best colleges seeking in after life the very crumbs and scraps of employment, unable to succeed in art, literature, science, or any class of work demanding brains and not muscle. These men are often free from vicious habits and are entirely willing to work hard, so that it is not to willful negligence of their opportunities that their failure is attributable. They are simply misplaced atoms of society, and their education has been the cause of their incapacity. When a human peg is hopelessly square, the utmost art of the tutor or the professor is wasted in trying to fit it into a round hole; yet that is what thousands of parents are constantly doing. The reason for most of these ill-directed efforts comes from certain social laws. To be a lawyer, a doctor, a professor, an actor or a clergyman, confers a higher social rank than to be a machinist, an engineer, a carpenter, a bricklayer, a coppersmith or a plumber; consequently there is a much greater demand for the former named places than for the latter. But in seven cases out of ten there is little attempt made to discover what is the natural taste of the youngster before his training begins. He may have a gift for machinery sufficient to lift him into eminence in iron and steel working; but when set to treading the mill of Latin and Greek verbs and struggling with the career of a minister it is not wonderful that a good machinist is spoiled and a nondescript turned into a pulpit. Of course, he fails there, and, having no training for any other place, he eats the bread of practical beggary and serves no useful purpose. In such a case the man's life is wrecked by his faulty education. Attempting a career far outside his natural capacity, training does not secure his success in one direction, although it closes all avenues in another. He can neither fly with the birds nor run with the mice, and necessarily spends a twilight existence among the bats.

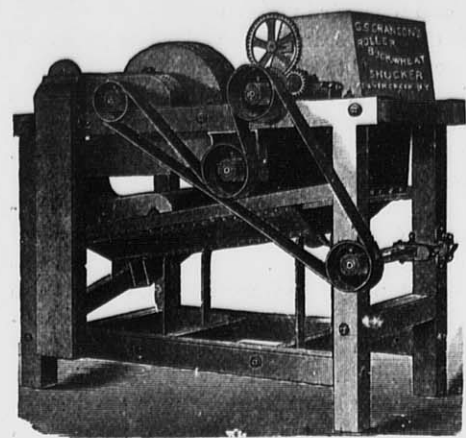
It may be claimed that his failures are not due to his education, but that they happen in spite of it, and that without it he would have been more incapable than ever. There may be a few instances of this kind, but there are not enough of them to be worth noticing in comparison with the number whose attempts to become learned have absolutely prevented them from becoming skilled. It may be admitted that, while most people desire good social position, all people must have their daily bread; consequently, the man who is led into poverty as a result of seeking social eminence will be sure to regard his quest as a failure. But supposing that he gets the social benefit of being known as a professor instead of blacksmith, and that he is just able to get enough food, clothing and shelter for a bare existence, does he enjoy life or does he contribute his share toward the labor of the world one-half as well as if he had gone to the forge, the mold and the lathe when he was a boy, instead of getting a very incomplete knowledge of many subjects and trying unsatisfactorily to impart it to others?

It is all very well to say that if a man cannot succeed as a preacher he ought to have no false pride about shouldering a hod. The same pride that led his parents to make a preacher out of him, when bricklaying would have been better suited to his tastes and capacities, will hold him back from taking a plunge so entirely opposed to the previous habits of his life.

In point of fact, one kind of work is just as honorable as another kind; but the millennium will come before most men will think so.—*Chicago Journal of Commerce.*



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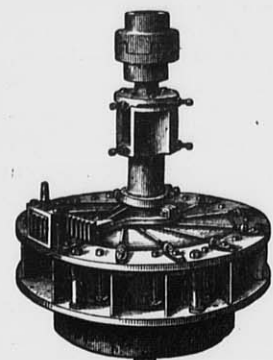
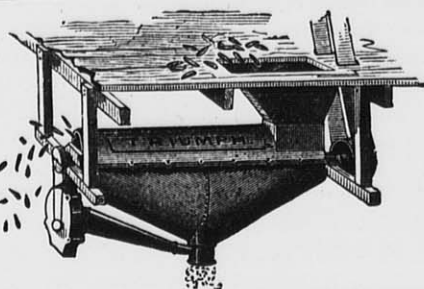
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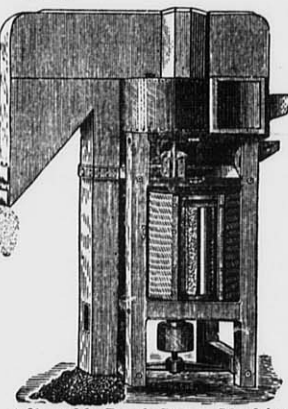
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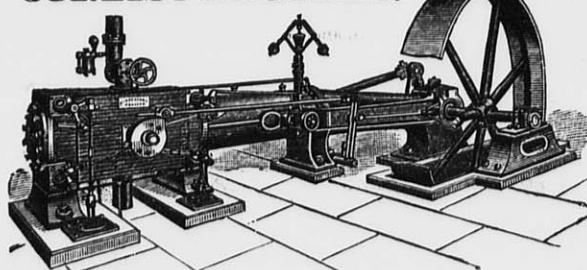
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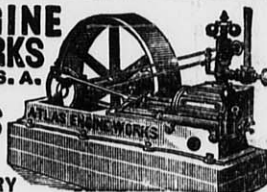
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## NEWS.

Odell rolls are to be placed in the mill of Nathan D. Egbert, Charlotte, Mich.

Odell rolls have been recently ordered by M. C. Stoner & Co., Chambersburg, Pa.

The Stilwell & Bierce Mfg Co. are furnishing Odell rolls to A. Egloff, St. Meinard, Ind.

The Stilwell & Bierce Mfg Co. have an order from Loanza, N. Y. City, for one of their Heaters.

The Stilwell & Bierce Mfg Co. have just shipped 4 large Victor wheels to Fred. Voll, London, Eng.

Jonathan Gregson Austin, Minn., is operating his mill on the Case system, of gradual reduction.

H. T. Pendleton, of Wentzville, Mo., is just starting up his mill on the Case system, of gradual reduction.

The Stilwell & Bierce Mfg Co. furnish a Victor turbine for the flour mill of Ja's K. Horr, Tippecanoe, O.

J. P. Felt, Emporium, Pa., will start up his mill in a short time on the Case system of gradual reduction.

R. K. Alles & Co., of Ann Arbor, Mich., are now operating their mill on the Case system of gradual reduction.

The Case Mfg. Co., Columbus, O., have the order of S. B. Chambers, Rome, Ga., for one No. 1 double purifier.

E. W. Allen, an employee in the Sherman Mill, at Eau Claire, Wis., recently broke both legs just above the knees.

The Stilwell & Bierce Mfg Co., have just shipped one of their celebrated Stilwell Heaters to Guaymas, Mexico.

The Eureka Mfg Co., of Rock Falls, Ill., have lately sent a Becker Wheat Brush, to O. J. True, of Port Clinton, Ohio.

The Case Mfg. Co., Columbus, O., have the order of Miller & Russell, Pana, Ill., for one No. 2 single Case purifier.

Carr & Bracken, Jamestown, Pa., are now happy as they are running their mill on the Case system of gradual reduction.

The Case Mfg. Co., Columbus, O., are furnishing Hurlbut and Carkeuff, Westford, Pa., with a break machine and purifier.

C. A. Smith, Lebanon, Mo., has purchased a Gray's noiseless belt roller mill, from Edw. P. Allis & Co., Milwaukee, Wis.

The Stilwell & Bierce Mfg Co., have an order from the North Star Iron Works, Minneapolis, Minn., for one of their Heaters.

The Stilwell & Bierce Mfg Co. are furnishing Victor turbine water wheels to run the flour mill of Dye & Welser, Troy, O.

The Stilwell & Bierce Mfg Co. have just shipped to Erlich Bros. Marion, Kas., a Victor turbine water wheel, for their flour mill.

Edw. P. Allis & Co., Milwaukee, Wis., recently sold Knapp, Stout & Co., Menominee, Wis., a Gray's noiseless belt roller mill.

The Case Mfg. Co., Columbus, O., have furnished Thos. Bradford & Co., Cincinnati, O., one more Little Giant break machine.

Belken & Murray, Frederickston, Md., recently ordered a Gray's noiseless belt roller mill of Edw. P. Allis & Co., Milwaukee, Wis.

Browsel & Russell, Morris, Manitoba, lately purchased a Gray's noiseless belt roller mill of Edw. P. Allis & Co., Milwaukee, Wis.

The Case Mfg. Co., Columbus, O., have the order of Baxter, Comstock & Co., Sac City, Iowa, for one No. 2 double Case purifier.

Thos. Koenigsmark & Co., of Columbia, Ills., have lately put in a Becker Wheat Brush, made by the Eureka Mfg. Co., of Rock Falls, Ills.

Colton Bros., Bellefontaine, O., have ordered from the Case Mfg. Co., Columbus, O., one Case automatic feed, for a double Odell roll.

The Stilwell & Bierce Mfg Co. are furnishing two Victor wheels to the Albion Milling Co., Albion, Mich., to furnish power for their mills.

E. P. Rhodes & Co., Bridgeport, Ohio, have recently ordered a Gray's noiseless belt roller mill from Edw. P. Allis & Co., Milwaukee, Wis.

L. A. Carr & Co., of Buffalo, W. Va., have filed an order with The Jno. T. Noye Mfg Co., Buffalo, N. Y., for a double Stevens' roller mill.

L. M. Marshall, Perry, Mich., has put in a Gray's noiseless belt roller mill, purchased from Messrs. Edw. P. Allis & Co., Milwaukee, Wis.

The mill of Baker & McMillen, Redwood Falls, Minn., is to be run by a Victor turbine just shipped to them by the Stilwell & Bierce Mfg Co.

The Stilwell & Bierce Mfg Co. have received in June, orders for special Victor turbine water wheels from the Umbagog Pulp Co., Portland, Me.

Chas. Gallagher & Co., Cairo, Ill., have ordered another Gray's noiseless belt roller mill, from Edw. P. Allis & Co., Reliance Works, Milwaukee, Wis.

The Case Mfg. Co., Columbus, O., have the order of I. C. Mansfield & Co., Athens, Tenn., for one pair bran rolls, with patent automatic feed.

The Case Mfg. Co., Columbus, O., have been ordered to ship Barnard & Harrison, Morrisonville, Ills., one pair scratch rolls, with automatic feed.

H. D. Rush, of Leavenworth, Kas., is putting in additional Stevens' roller mills, to be furnished by the Jno. T. Noye Mfg Co., of Buffalo, N. Y.

E. Valentine, Baltimore, Md., has recently ordered four pairs of Allis rolls in Gray's noiseless belt frames, from Edw. P. Allis & Co., Milwaukee, Wis.

The Stilwell & Bierce Mfg Co. have recent orders for their celebrated line extracting heaters from the Great Western Mfg Co., Leavenworth, Kan.

Geo. Esmond, Ft. Wayne, Ind., is shipping his Allis rolls to the Case Mfg. Co., Columbus, O., to have their patent automatic feed placed on them.

The Case Mfg. Co., Columbus, O., have received two invoices of rolls, from J. M. & J. I. Walton, Gallatin, Tenn., to be reground and recorruated.

D. L. Geyer, of Pomeroy, O., has lodged an order with the Jno. T. Noye Mfg Co., of Buffalo, N. Y., for a double Stevens' roller mill, for bran and tailings.

The Link Belt Machinery Co., Chicago, Ill., lately ordered six pairs of Allis rolls in Gray's noiseless belt frames from E. P. Allis & Co., Milwaukee, Wis.

Wilson & Co., Rosemond, Ill., lately purchased a Gray's noiseless belt roller mill, from Messrs. Edw. P. Allis & Co., of the Reliance Works, Milwaukee, Wis.

The Port Washington Mill Co., Port Washington, Wis., have recently contracted with Edw. P. Allis & Co. of the Reliance Works, Milwaukee, for the machinery for their new mill, taking the place of their old one burned recently; the mill will have twelve pairs of Allis' rolls in Gray's

noiseless belt frames, and will be run by a Reynolds-Corliss engine. The mill, when completed will have a capacity of 125 bbls. in 24 hours.

G. W. Hecker & Co., New York City, recently added another Gray's noiseless belt roller mill, purchased from Messrs. Edw. P. Allis & Co., Milwaukee, Wis.

Wolf & Hamaker, Allentown, Pa., recently ordered six pairs of Allis' rolls in Gray's noiseless belt frames, from Messrs. Gabel, Bertollet & Co., Montgomery, Pa.

The N. W. Mill Co., Milwaukee, Wis., recently put in a Gray's noiseless belt roller mill, from the Reliance Works, of Messrs. Edw. P. Allis & Co., Milwaukee, Wis.

Edw. P. Allis & Co., of the Reliance Works, Milwaukee, Wis., recently sold Messrs. Schoelkopf & Matthews, Buffalo, N. Y., one Gray's noiseless belt roller mill.

J. C. Cox, Warren, Ill., has placed an order with the Jno. T. Noye Mfg Co., of Buffalo, N. Y., for a Rounds' sectional roller mill, with Stevens' corrugations.

Woodward & Norton, LeRoy, Kas., are putting in an Allis roller outfit in Gray's noiseless belt frames, from Edw. P. Allis & Co.'s Reliance Works, Milwaukee.

R. Bishop, of McHenry, Ills., not bring suited with his cleaning machines, has lately adopted the Becker Brush, made by the Eureka Mfg. Co., of Rock Falls, Ills.

Horr, Warner & Co., of Wellington, Ohio, are overhauling their mill and have put in a Becker Wheat Brush, made by the Eureka Mfg. Co., of Rock Falls, Ills.

Weenhold & Sons, have improved their cleaning machinery by placing in their mill a Becker Wheat Brush, made by the Eureka Mfg. Co., of Rock Falls, Ills.

The Case Mfg. Co., Columbus O., are furnishing A. F. Ordway & Son, Beaver Dam, Wis., one 3 roll break machine, for the mill they are building at Ixonia, Wis.

Edw. P. Allis & Co., of the Reliance Works, Milwaukee, Wis., have just received an order from the Plano Mfg Co., Plano, Ill., for a 26x48 Reynolds' Corliss engine.

H. Julius Klingler, Butler, Pa., recently purchased a porcelain roller mill in Gray's noiseless belt frames, from Edw. P. Allis & Co., Reliance Works, Milwaukee, Wis.

L. B. Joy of Bath, N. Y., is putting in a No. 2 four-break reduction machine, and a Gray's noiseless belt roller mill purchased from Edw. P. Allis & Co., Milwaukee, Wis.

The Stilwell & Bierce Mfg Co. have orders for 6 pairs of Odell rolls from the Gratiot Mfg Co., Chicago, Ill.; also from the Simpson & Gault Mfg Co., Cincinnati, O.

J. & S. Emison, of Vincennes, Ind., are increasing the capacity of their mill by the addition of Stevens' rolls, to be furnished by the Jno. T. Noye Mfg Co., Buffalo, N. Y.

The Case Mfg. Co., Columbus, O., have the order of the Novelty Iron Works, Dubuque, Iowa, for one Little Giant break machine, to be shipped to G. G. Bonn, Bellevue, Iowa.

A. J. Klinger, Greenville, O., has shipped his Livingston rolls, paying freight both ways to the Case Mfg. Co., Columbus, O., to have their patent automatic feed attached.

Edward P. Allis, Milwaukee, Wis.; Ja's Leffel & Co., Springfield, O.; Agerter, Stephenson & Co., Upper Sandusky O., have ordered Heaters from the Stilwell & Bierce Mfg Co.

Wm. Lindsley of Humboldt, Kans., wishing to clean his wheat in a perfect manner, has lately bought a Becker Wheat Brush, made by the Eureka Mfg. Co., of Rock Falls, Ills.

Edw. P. Allis & Co. of the Reliance Works, Milwaukee, Wis., recently shipped twenty pairs of Allis rolls to San Francisco, Cal., for jobs they have under construction in California.

The Case Mfg. Co., Columbus, O., have the order of A. F. Ordway & Sons, Beaver Dam, Wis., for a line of breaks and rolls, for the mill they are building at New Bassel, Wis.

Haggerty, Hunter & Co., Peoria, Ill., recently ordered a Gray's noiseless belt roller mill, from Messrs. Edw. P. Allis & Co., Milwaukee, Wis., for a job they have at Magnon, Ill.

Capt. E. W. Pride of Neenah, Wis., has lodged an order with The Jno. T. Noye Mfg Co. of Buffalo, N. Y., for a double Stevens' roller mill for Henry Bruemmer, of Alnapee, Wis.,

J. O. Halteman & Co., St. Louis, Mo., recently placed an order with Edw. P. Allis & Co., Milwaukee, Wis., for a Gray's noiseless belt roller mill for A. Austin & Co., Metropolis, Ill.

Bell & Foster, Mansfield, Pa., have ordered of The Jno. T. Noye Mfg Co., Buffalo, N. Y., ten pairs of Stevens' rolls for their mill, which is being converted into a new roller mill.

A complete line of Odell rolls are to be placed in the mill of Jacob Rankerk, Bolivar, O. The contract of this mill was awarded to the Richmond City Mill Works, Richmond, Ind.

Chas. Gallagher & Son, of Cairo, Ills., who are among the best and largest millers in the state, have lately added a Becker Wheat Brush, made by the Eureka Mfg. Co., of Rock Falls, Ills.

Edw. P. Allis & Co., Milwaukee, Wis., recently received an order from the Bradford Mill Co., of Cincinnati, O., for a Gray's noiseless belt roller mill, for J. W. Talbot, Rising Sun, Ind.

The Case Mfg Co. Columbus, O., are furnishing Crissman & Burnell, Denver, Colorado, with one No. 1 double purifier, one Case centrifugal reel and other machinery for their "Star Mills"

B. F. Gump of Chicago, Ill., has directed The Jno. T. Noye Mfg Co. of Buffalo, N. Y., to ship him another Rounds' sectional roller mill with Stevens' corrugations, scalpers and elevators.

Edw. P. Allis & Co., of the Reliance Works, Milwaukee, Wis., have sold a 12x36 Reynolds' new style engine to the Milwaukee Industrial Exposition, to furnish power for electric light plants, etc.

Upton Darby, Seneca, Md., lately ordered a four-break machine, Gray's noiseless belt roller mill, clearing machinery, etc., from Edw. P. Allis & Co. of the Reliance Works, Milwaukee, Wis.

Edw. P. Allis & Co., of the Reliance Works, Milwaukee, Wis., lately received an order from Mr. W. J. Geobegan, Paris, Ill., for a Gray's noiseless belt roller mill, for Mr. W. H. Singer, Neoga, Ill.

J. P. Becker, & Co. of Petersburg, Mich., are putting in a Rounds sectional roller mill with Stevens' corrugations, and a single mill, all to be furnished by the Jno. T. Noye Mfg Co., of Buffalo, N. Y.

The Jefferson Mills of Mt. Vernon, Ills., have recently improved their cleaning machinery, and have put in their mill a Becker Wheat Brush, made by the Eureka Mfg. Co., of Rock Falls, Ills.

Chas. Heuber, the milling engineer, of St. Louis, Mo., has instructed the Jno. T. Noye Mfg Co., of Buffalo, N. Y., to ship Jefferson Mill & Elevator Co., at Mt. Vernon, Ill., three Stevens' roller mills.

Edw. P. Allis & Co., Milwaukee, Wis., recently received an order from the Bass Fdy. Machine Works, Ft. Wayne, Ind., for a Gray's noiseless belt roller mill, for Darling Mill Co., Fremont Center, Mich.

The Stilwell & Bierce Mfg Co., have an order from Calvin Seybolt, Scranton, Pa., for 13 pairs of Odell rolls, and a complete line of machinery for their 100-bbls. mill to be built on the Odell system.

Edw. P. Allis & Co., of the Reliance Works, Milwaukee, Wis., in spite of all competition, secured the order for a 32x48 Reynolds' Corliss engine, complete, for the Geo. P. Plant Milling Co., of St. Louis.

Jno. Strong & Son, of South Rockwood, Mich., have looked into the merits of all Brush Machines, and have placed a Becker Wheat Brush, in their mill, made by the Eureka Mfg. Co., of Rock Falls, Ills.

The Stilwell & Bierce Mfg Co. have the following recent orders for Heaters: from Robinson & Burr, Champaign, Ill.; H. Hailey, Cadillac, Mich.; H. B. Groff, Fertility, Pa.; The Winford Water Co., Winford, Kan.

The Link Belt Machinery Co. of Chicago, show their appreciation of Stevens' roller mill over all others, by placing an order with The Jno. T. Noye Mfg Co. for the mill they are overhauling at Merom, Ind

Wm. Brinner of Atlanta, Ga., reports the State of Georgia to be in a ripe condition for the introduction of modern mill machinery. He has two Stevens' roller mills of The Jno. T. Noye Mfg Co. of Buffalo, N. Y.

After examining into the merits of all the different Brush Machines, J. R. Clark & Co., of Baltimore, Md., have placed in their mill a Becker Wheat Brush, made by the Eureka Mfg. Co., of Rock Falls, Ills.

Penfield, Lyon & Co., at Oswego, N. Y., are increasing their capacity by putting in six pairs of Stevens' rolls in addition to what they already have; The Jno. T. Noye Mfg Co. of Buffalo, N. Y., will fill the order.

O. L. Rounds, of Auburn, N. Y., has filed an order with the Jno. T. Noye Mfg Co., Buffalo, N. Y., for a Rounds' sectional roller mill, with Stevens' corrugations, and two single mills for bran and low grade grinding.

R. W. Mehard, East Brook, Pa., has ordered one Little Giant break machine, and one double Bismarck mill, with automatic feed, from the Case Mfg. Co., of Columbus, O., to be shipped to New Wilmington, Pa.

Williams Bros., Kent, Ohio, are remodeling their mill to the roller system. Allis & Co. of Milwaukee, Wis., are furnishing the machinery, which will include seven pairs of Allis rolls in Gray's noiseless belt frames, etc.

E. P. Allis & Co., Milwaukee, Wis., have secured a contract for remodeling the mill of M. Tapping & Son, Plainfield Mich., and will use a No. 2 four-break reduction machine and Gray's noiseless belt roller mills, etc.

Victor water wheels are to be placed in the following mills: Milton Boorst, Cobleskill, N. Y.; A. P. Clark, Cazenovia, N. Y.; S. S. Greely, Posters Crossing, O.; S. Moore, Tolland, Mass.; and Richards & Co., Gardner, Me.

Price & Wilkinson, Taylorville, Ill., have ordered a 16x42 Reynolds' Corliss engine, complete, to run their flour mill at that place. Messrs. Allis & Co., also furnish the roller mills and special machinery for this mill.

Edw. P. Allis & Co., of the Reliance Works, Milwaukee, Wis., recently sold the La Crosse Brush Electric Light and Power Co., of La Crosse, Wis., a 14x36 Reynolds' Corliss engine, complete, to drive their electric light plants.

The Case Mfg. Co., Columbus, O., have been awarded the contract of Geo. Esmond, Ft. Wayne, Ind., for a full line of breaks, rolls, purifiers, scalpers, centrifugals, &c., for a full gradual reduction mill, on the Case system.

Edw. P. Allis & Co., of the Reliance Works, Milwaukee, Wis., have a contract with Virgil Beale, Cobden, Ill., to remodel his mill to the roller system, and will use fourteen pairs of Allis' rolls in Gray's noiseless belt frames.

Geo. F. Smith, Middlings Purifier Co., of Jackson, Mich., have put in a 12x30 Reynolds' Corliss engine, from the Reliance Works, of Messrs. Edw. P. Allis & Co., Milwaukee, Wis., to furnish power for their works at Jackson.

Orders have been placed with the Stilwell & Bierce Mfg Co. by Jarvis, Barnes & Co., Lansing, Mich.; Smith, Beggs & Rankin Machine Co., St. Louis, Mo.; Kansas City Smelting and Refining Co., Argentine, Kan.; for Stilwell Heaters.

Shuler & Co., of Minneapolis, Minn., are putting in the mill of C. F. Butterfield, Lake Crystal, Minn., a Rounds' sectional roller mill with Stevens' corrugations, to be furnished by the Jno. T. Noye Mfg Co., of Buffalo, N. Y.

The Carlyle Mill Co., of Carlyle, Ills., in making their recent improvements, have adapted the Becker principle of cleaning wheat, and have lately put in a Becker Wheat Brush, made by the Eureka Mfg. Co., of Rock Falls, Ills.

Ehrlich Bros., Marion, Kas., have placed an order with the Jno. T. Noye Mfg Co., Buffalo, N. Y., for a Rounds' sectional roller mill with Stevens corrugations, cylinder scalper and elevators, and a double mill for bran and germ.

The Stilwell & Bierce Mfg Co. have recent orders for the celebrated Stilwell Heaters from Heffner & Co., Circleville, O.; Wysox, Hains & Co., Muncie, Ind.; Coble, Throne & Co., East Palestine, O.; and Graham & Daugerty, Dayton, O.

The Pierce Mill Co., Pierce, Neb., have contracted with Edw. P. Allis & Co. for new 100-bbls. mill; E. P. Allis & Co. to furnish everything and do all the work. The mill will contain ten pairs of Allis rolls in Gray's noiseless belt frames.

Smith, Gifford & Co., Nashville, Tenn., recently placed their order with Messrs. Edw. P. Allis & Co., of the Reliance Works, Milwaukee, Wis., for a Gray's noiseless belt roller mill, for Messrs. Barrett, Denton & Lynn, Dalton, Ga.

The U. S. Albumen Mfg Co., Osterville, Mass., lately purchased four pairs of porcelain rolls in Gray's noiseless belt frames, from Edw. P. Allis & Co., of the Reliance Works, Milwaukee, Wis., to use in their albumen works at that place.

Peter Schatz, Eldorado, Iowa, is remodeling to the roller system, and has placed his order with Edw. P. Allis & Co. of Reliance Works, Milwaukee, Wis., for one of their No. 2 four-break reduction machines and a Gray's noiseless belt roller mill.

The Banner Milling Co., owned and operated by Esser, Zimmerman & Ogden, of Buffalo, N. Y., are increasing their capacity by putting in ten pairs of Stevens' rolls with recent improvements. The Jno. T. Noye Mfg Co., have the contract.

J. S. Evans, Haddonfield, N. J., is placing in his mill a Rounds' sectional roller mill with Stevens' corrugations, cylinder scalper and elevators, and a double mill for germ and tailings; all will be furnished by The Jno. T. Noye Mfg Co. of Buffalo, N. Y.

The Case Mfg. Co., Columbus, O., have been awarded the contract of A. J. Klinger, Greenville, O., for a full gradual reduction mill on the Case system, using a full line of breaks, rolls, purifiers, centrifugal, scalpers, &c. of the Case Co's. manufacture.

The Haxton Steam Heating Co., of Kewanee, Ill., have ordered a 22x48 Reynolds' Corliss engine, complete with boiler, heater, pumps, etc., for their works at that place; same was ordered of Messrs. Edw. P. Allis & Co., of the Reliance Works, Milwaukee, Wis.

H. E. Long, Grand Rapids, Wis., is remodeling the mill of Hon. W. T. Price, at Hixton, Wis. Edw. P. Allis & Co., Milwaukee, are furnishing eight pairs of Allis rolls in Gray's noiseless belt frames, together with the rest of the machinery necessary for the change.

J. S. Bristol, Auburn, N. Y., has determined to place in his mill a Rounds' sectional roller mill with Stevens' corrugations, cylinder scalpers and elevators, a single mill for low grade, and a double mill. The Jno. T. Noye Mill Co., of Buffalo, N. Y., have the order.

The Stilwell & Bierce Mfg Co. are to build the mill of Ja's C. Wilkinson of Lewiston, Ill., the capacity to be 150 barrels per day; the mill is to be built on the Odell system and furnished with 10 pairs of Odell rolls with independent and simultaneous belt tighteners.

The Riverton Mill Co., Riverton, Va., will soon remodel their mill to the roller system, and have already contracted with Edw. P. Allis & Co., of the Reliance Works, Milwaukee, Wis., for the outfit, including eight pairs of Allis' rolls in Gray's noiseless belt frames.

J. T. Clark of Hunter's Creek, Mich., is remodeling his mill and placing therein a Rounds' sectional roller mill with Stevens' corrugations, cylinder scalper and elevators, and a double mill for bran and tailings. The Jno. T. Noye Mfg Co., of Buffalo, N. Y., have the contract.

A. F. Ordway & Son of Beaver Dam, Wis., continue to have their hands full of work in the mill furnishing line. They are now remodeling the mill at Exonia, Wis., and putting in an outfit of Allis' rolls in Gray's noiseless belt frames, from Edw. P. Allis & Co. of Milwaukee.

A. G. Akin & Son, Hagarstown, Md., have recently purchased the mill at Hagarstown, and will remodel same to the roller system, having placed an order with Edw. P. Allis & Co., Milwaukee, for the entire outfit, including ten pairs of Allis rolls in Gray's noiseless belt frames.

F. Thoman, Lansing, Mich., will soon remodel his mill to the roller system, and has placed his order with Messrs. Edw. P. Allis & Co., of the Reliance Works, Milwaukee, Wis., for eight pair of Allis' rolls in Gray's noiseless belt frames, together with purifiers, etc.

The Bradford Mill Co., Cincinnati, O., are remodeling the mill of Pearce Bros. at Maysville, Ky., and have ordered a line of Allis' rolls, in Gray's noiseless belt frames, from Messrs. Edw. P. Allis & Co., Milwaukee, Wis., for the same.

The Bradford Mill Co., of Cincinnati, O., lately placed an order with Messrs. Edw. P. Allis & Co., of the Reliance Works, Milwaukee, Wis., for sixteen pair of Allis' rolls in Gray's noiseless belt frames, also purifiers, etc., for a mill they are remodeling in Ohio

E. F. Schatzler & Co., Evansville, Ind., are remodeling the mill of A. J. Woods, King Station, Ind., and have placed an order with Edw. P. Allis & Co., Milwaukee, Wis., for sixteen pair of Allis' rolls in Gray's noiseless belt frames, together with centrifugals, reels, purifiers, etc., the mill will have a capacity of 150 bbls.

Edw. P. Allis & Co., of the Reliance Works, Milwaukee, Wis., recently sold Messrs. C. Shoe & Son, Appleton City, Mo., three pair of Allis' rolls, one of their new four break reduction machines, and other machinery, necessary to change their mill to the roller system.

Shuler & Co., of Minneapolis, Minn., are busy as bees and are now building a new roller mill at Lisbon, D. T., in which will be used a Rounds' sectional roller mill, with Stevens' corrugations, and two double mills, all to be furnished by the Jno. T. Noye Mfg Co., of Buffalo, N. Y.

Edw. P. Allis & Co., Milwaukee, Wis. are remodeling the mill of Messrs. Barnum & Keenan, Leroy, Ill., and are putting in one of their No. 2 four break machines, six pair of rolls in Gray's noiseless belt frames and other machinery, necessary to change their mill to the roller system.

Schenck & Strassen, Lyons, Wis., visited Milwaukee, Wis., recently and while there placed an order with Edw. P. Allis & Co. of the Reliance Works, for one of their new four-break reduction machines, four pairs of Allis' rolls in Gray's noiseless belt frames, and other special machinery.

Jno. Webster, of Detroit, Mich., the popular and good looking millwright, has lodged an order with the Jno. T. Noye Mfg Co., Buffalo, N. Y., for a Rounds' two pair sectional roller mill, with Stevens' corrugation and reel scalpers, and three double mills for the mill of C. H. Rudd, Orion, Mich.

Mr. J. Hayes of J. & J. Hayes, Goneburn, New South Wales, Australia, after visiting all the principal mill furnishing establishments in this country, came to Milwaukee and placed his order with Edw. P. Allis & Co., of the Reliance Works, for two pairs of Allis' rolls in Gray's noiseless belt frames, for their mill in Australia.

Edw. P. Allis & Co., of the Reliance Works, Milwaukee, Wis., recently received an order from the Nashville Mill Co., for a 14x36 Reynolds' Corliss engine, complete with boiler, heater, pump, etc., also for the roller mills, special machinery, etc., for their new mill, which, when completed, will have a capacity of 150 bbls. per diem.

Wolf & Hamaker, Allentown, Pa., recently placed orders with Messrs. Edw. P. Allis & Co., of the Reliance Works, Milwaukee, Wis., for ten pair of the celebrated Allis' rolls in Gray's noiseless belt frames, from Messrs. Harzel & Sons, Chalfort, Pa., also for six pair Allis' rolls for Messrs. H. P. Butz & Co., Alburts, Pa., same in Gray's noiseless belt frames.

J. Hayes, of the firm of J. & J. Hayes, Goneburn, New South Wales, Australia, who has been in this country for the purpose of investigating engines and mill machinery, after visiting all of the principal factories, came to Milwaukee, and placed an order with Messrs. Edw. P. Allis & Co., of the Reliance Works, for an 18x36 Reynolds' new style engine, also for Allis' roller mills, in Gray's noiseless belt frames.

The Texarkana Oil & Mfg. Co., Texarkana, Ark., have recently placed their order with Messrs. Edw. P. Allis & Co., of the Reliance Works, Milwaukee, Wis., for an 18x42 Reynolds' Corliss engine, complete with boiler, heater, pumps, etc. The Reynolds' Corliss engine is coming into quite general use among the Oil Compress Co's., of the south largely on account of its regulating of motion, economy and great durability.

The following well known mill furnishes, have recently placed their order for the Becker Wheat Brush, made by the Eureka Mfg Co., of Rock Falls, Ills.: E. P. Allis & Co., Milwaukee, Wis.; Nordyke & Marmon, Indianapolis, Ind.; B. F. Gump, Chicago, Ills.; Barney & Kilby, Sandusky, Ohio; Slater Mill Co., Lancaster, Ohio; A. Dehner & Co., St. Louis Mo.; Sinkler, Davis & Co., Indianapolis, Ind.; Great Western Mfg Co., Leavenworth, Kans.; Gratiot Mfg. Co., Chicago, Ills



# THE : CASE : PURIFIER !

## Made Either Double or Single.

**We now come before the Milling Public with Renewed Confidence in our Unrivalled Purifier.**

*The Court, in deciding the Smith Company's infringement suit against us, not only said there was no infringement, but added, "Case is as far beyond Smith as Smith was beyond Stoll"—which but echoes the sentiments of hundreds of Millers using our Purifiers. Write to any of those named below for their opinion of it; without even having asked one of them ourselves for their favorable opinion of our machine, we believe 99 per cent. of them will reply about as follows: "It is the Best Purifier made," etc., etc.*

## The Case Middlings Purifier !

A—The Fan spout, is reversible and can be made to blow toward either end of Purifier.

The Fan can be placed on top or end of Purifier—when on end it increases the length 39 inches, and diminishes the height 22 inches.

B—Air-valve upper Riddle.

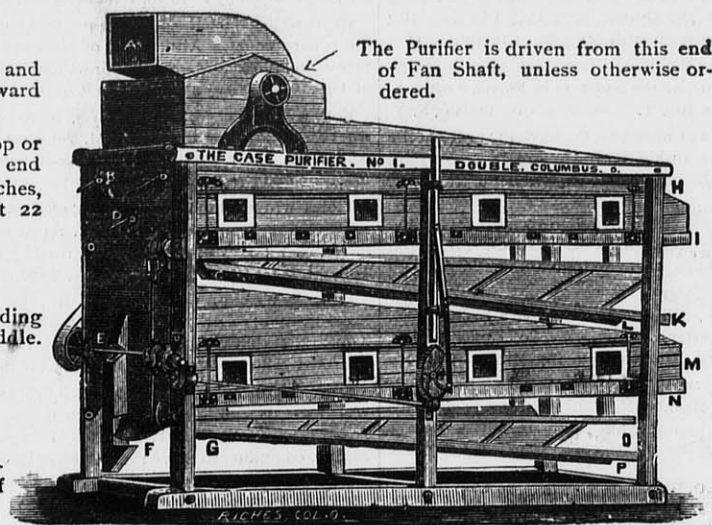
C—Cut-off for upper Riddle, sliding one-half the length of Riddle.

D—Air-valve, lower Riddle.

E—Upper Riddle tails off here.

F—Lower Riddle tails off here.

G—Cut-off for lower Riddle, sliding one-half the length of Riddle.



H—Feed Box for upper Riddle.

I—Bolting Cloth for upper Riddle.

K—Purified Middlings from upper Riddle.

L—Cut-off from upper Riddle.

M—Feed Box for lower Riddle.

N—Bolting Cloth for lower Riddle.

O—Purified Middlings from lower Riddle.

P—Cut-off from lower Riddle.

The upper and lower halves are each a complete machine, and can be run together, or separately, as desired.

*We do not propose to be subdued or scared off from the manufacture of this noble machine, by money or by threats, and all we ask at the hands of our milling friends is their continued liberal patronage which we interpret to mean just two things, viz: 1st. That they appreciate a well-made, First-Class Purifier. And, 2d. That they are down on that kind of grasping, consolidated monopoly that would seek to wholly control the manufacture of so important a machine as the Middlings Purifier. We say it modestly, but truthfully, that but for ourselves every Miller wishing to purchase a Purifier would now be practically at the mercy of one manufacturer. We propose to give you the benefit of a healthy competition.*

*We shall also continue to make our now famous line of "Bismarck" Mills, giving a complete line of Gradual Reduction Machinery, the most popular we believe of any now on the market.*

*We append a few names from among the many who have lately ordered our Purifier, and invite Millers to write to any of them.*

Dye & Weller.....	Troy, O.	J. P. Roberts.....	Eaton Rapids, Mich.	Leach & Reasoner.....	Halstead, Kans.
Carr & Bracken.....	Jamestown, Pa.	Mrs. H. Weisman .....	Logan, Mo.	Scott & Buell.....	Union City, Ind.
J. W. Emission & Co.....	New London, Mo.	Kloose & Bradford.....	Creston, Iowa.	Wm. Dial.....	Osawkee, Kans.
Dirks & Co .....	Marietta, O.	C. Harvey.....	Wilber, Neb.	Link Belt Machinery Co.....	Chicago, Ills.
J. Q. Holteman.....	St. Louis, Mo.	Armstrong & Son.....	Fayette, Mo.	Woods & Dunlap.....	O'Fallen, Mo.
W. V. Banks.....	Versailles, Mo.	J. M. & H. C. Allen.....	Grafton, Ills.	Wm. Sharaga.....	Pomona, Ills.
Nordyke & Norman.....	Indianapolis, Ind.	Great Western Mfg. Co .....	Leavenworth, Kans.	Baldwin & Osborne.....	Waupaca, Wis.
Wm. Annan.....	Morrison, Ills.	Ailes & Co.....	Ann Arbor, Mich.	A. L. Jacobs.....	Pana, Ills.
H. W. Stone.....	Morris, Minn.	J. H. Jones & Co.....	Jamesport, Mo.	R. Taate & Co.....	Columbia City, Ind.
S. M. Wenger.....	Lincoln, Mo.	I. R. Hopkins & Son.....	Eagle, O.	Brown Bros.....	Columbus, O.
J. L. Slough & Son.....	Delaware, O.	J. K. Mullen.....	Denver, Col.	G. W. Nicewanner.....	Piqua, O.
J. Geib & Co.....	Louisville, O.	Lloyd & Bivens .....	Terrell, Tex.	C. T. Johnson.....	Flora, Ills.
Jas. Wellman .....	Flint, Mich.	N. Swift & Co.....	Ann Arbor, Mich.	R. A. Welch.....	Rome, Ga.
Spaulding & Miller.....	Montpelier, Ind.	Maxon & Robinson.....	Maxon Mills, Ky.	L. W. Taylor.....	Mt. Pleasant, Ia.
Smith & Lawther.....	Nickerson, Kans.	Crocker & Dodge.....	Rosburg, Oregon.	D. Thomas & Son.....	Newark, O.
Lucas & Aikens.....	Ulrichville, O.	Courtney Wood.....	Kiosville, O.	White & Feather.....	Clark Mills, Pa.
Wm. Deubel & Co. ....	Ypsilanti, Mich.	Patterson & Donleavy.....	New Philadelphia, O.	I. B. Chambers.....	Rome, Ga.
McHase & Clark.....	Vassar, Mich.	I. F. McDonald.....	Oxford, Iowa.	Miller & Russell.....	Jamestown, Pa.
Mast & Troyer.....	Buenna Vista, O.	Miller & Co.....	Augusta, Ga.	Geo. E. Esmond.....	Ft. Wayne, Ind.
H. T. Pendleton.....	Wentzville, Mo.	R. J. Patton.....	Means, O.	A. J. Klinger.....	Greenville, O.
J. P. Felt.....	Emporium, Pa.	Geo. Hyatt.....	Washington, Ind.	Matt Wolf.....	De Graff, O.
John Brinks, Jr.....	Amelia C. H., Va.	G. Wilkie.....	Lexington, Mo.	Coleman & Burnell.....	Denver, Col.

# Case Manufacturing Co., Columbus, Ohio.

[Please mention the UNITED STATES MILLER when you write to us.]



W. H. Cord's mill, at Butler, Pa., burned.  
 Wilson & Holman's mill, at Dallas, Ore., burned.  
 Miles S. Cutting's mill, at Fisher's, N. Y., burned.  
 Z. Ames & Son have sold their mill at The Forks, Neb.  
 Solomon Lightcap, the miller at Hazel Green, Wis., is dead.  
 W. L. Davis' mill, at Jefferson, Tenn., burned; insurance \$2,750.  
 Miller & Phoenix, Sterling, Neb., have quit the milling business.  
 Wheeler, Hensline & Co., Minneapolis, have dissolved partnership.  
 Edward O. Turner's mill, at Harvard, Minn., burned. Loss \$12,000.  
 Leonard & Son, millers, at Loveland, Col., are closing out business.  
 John Wilson's mill, at Dundas, Ont., was recently badly damaged by fire.  
 B. S. Renbough & Son's mill, at Sedalia, Mo., burned. Partially insured.  
 Long Bros. & Gardland's mill at Stayner, Ont., has suffered damage by fire.  
 Thomas Bros. succeed F. W. Wolf in the milling business at Madison, Neb.  
 F. Goodenow & Co., Salina, Kas., are succeeded by the Salina Mill and Elevator Co.  
 O. O. Heasley's mill, at Delano, Minn., burned June 27. Loss \$6,000. Insurance \$3,000.  
 Nussbaum & Delancy succeed Bowers & Delancy in the milling business, at Bucyrus, O.  
 J. K. Mullen & Co., Denver, Col., have lately placed six No. 1 double Case purifiers in their mill.  
 M. D. & A. W. Hodge, of North Adams, Mass., are replacing their porcelain with Stevens' rolls.  
 J. P. Davis, of the milling firm of Woodward & Davis, of Shelbyville, Ill., has retired from business.  
 Armstrong & Sons, Fayette, Mo., have lately started up their mill on the Case system of gradual reduction.  
 H. T. Pendleton, Wentzville, Mo., has his mill now in operation on the Case system of gradual reduction.  
 Brown Bros., Columbus, O., will start up their mill on the Case system of gradual reduction, in a few days.  
 I. H. Jones, Jamesport, Mo., will start up his mill in a short time on the Case system of gradual reduction.  
 M. S. Crowley, Brookville, Kas., is running rolls and purifiers furnished by the Case Mfg Co., Columbus, O.  
 Keller & Uhl, of Connersville, Ind., have ordered Livingston rolls from Stout, Mills & Temple, Dayton, Ohio.  
 Baldwin & Osborn, Waupaca, Wis., are putting in a No. 1 double purifier from the Case Mfg Co., Columbus, O.  
 M. M. Snider, Cambridge, Iowa, is running a line of machines furnished by the Case Mfg Co., Columbus, O.  
 Allen Zininger & Co., Brighton, Iowa, have put in a No. 2 double purifier, from the Case Mfg Co., Columbus, O.  
 Stout, Mills & Temple, of Dayton, Ohio, have just shipped Livingston rolls to H. C. Dutton, Edmore, Mich.  
 A. H. Haun & Son's mill, at Thorntown, Ind., was recently damaged by fire to the extent of \$700. Insurance \$400.  
 William Brenner, Atlanta, Ga., has ordered of The Jno. T. Noye Mfg Co. of Buffalo, N. Y., another Stevens roller mill.  
 Miller & Co., of Augusta, Ga., will start up their 300 bbl mill on the Case gradual reduction system in a short time.  
 J. D. Saunbay's mill, at London, Ont., was recently damaged to the extent of \$12,000 by the washing away of the dam.  
 B. F. Gump, Chicago, Ill., has deposited an order with the Jno. T. Noye Mfg Co. for two single Stevens' roller mills.  
 Jos. Sulphin & Son, of Middletown, Ohio, is just in receipt of Livingston rolls from Stout, Mills & Temple, Dayton, O.  
 J. M. Corl, Navarre, O., is putting in more Stevens' rolls, to be furnished by the Jno. T. Noye Mfg Co., of Buffalo.  
 The Case Mfg Co., Columbus, O., have shipped J. D. Green & Co., Faribault, Minn., one additional break machine.  
 The Case Mfg Co., Columbus, O., have lately shipped Scott & Buell, Union City, Mich., one No. 1 double Case purifier.  
 Stout, Mills & Temple, of Dayton, O., have an order from F. C. Traubine, Beavers, O., for six pair of Livingston rolls.  
 The Bolekow Milling Co., of Bolekow, Mo., have placed an order with Stout, Mills & Temple, Dayton, O., for Livingston rolls.  
 The City Mills & Elevator Co., Sioux City, Iowa, are running a Case purifier furnished by the Case Mfg Co., Columbus, O.  
 The Case Mfg Co., Columbus, O., have an additional order for break machines from Thos. Bradford & Co., Cincinnati, O.  
 Smith, Lawther & Co. Nickerson, Kansas, are running their mill on the Case system of gradual reduction with splendid results.  
 L. G. Baker, of Shippensburg, Pa., has ordered of the Jno. T. Noye Mfg Co., of Buffalo, N. Y., a single Stevens' roller mill for germ smashing.  
 B. F. Gump of Chicago, Ill., reports his grinding and corrugating machine full of work; he says, however, he can do a little more.  
 George A. Dayton, Tonawanda, Pa., is putting in another pair of Stevens' rolls, to be furnished by The Jno. T. Noye Mfg Co. of Buffalo, N. Y.  
 The Jno. T. Noye Mfg Co., of Buffalo, N. Y., are letting the contract for the construction of very large additions to their already large works.  
 Beaumont & Freeman, of Springfield, Mo., have placed their order with Stout, Mills & Temple, Dayton, O., for a Gilbert combined roller mill.  
 C. O. McKrum, Garrett, Kas., has ordered of the Jno. T. Noye Mfg Co., of Buffalo, N. Y., a double Stevens roller mill, for bran and germ.  
 The Case Mfg Co., Columbus, O., have shipped Barrett & Son, Spring Valley, O., one of their patent automatic feed for a double porcelain roll.  
 The Case Mfg Co., Columbus, O., have the order of Joseph Gebhart & Son, Dayton, O., for one pair scratch rolls, with patent automatic feed.  
 Eliwood & Armstrong, of Rochester, N. Y., are putting in a single Stevens' roller mill to be furnished by the Jno. T. Noye Mfg Co., of Buffalo, N. Y.  
 Geo. Hendre, for a time head miller at La Belle Roller Mill, Oconomowoc, Wis., has accepted a position at Wm.

Notbohm's Delandfield Mill, at Delandfield, lately supplied with rollers. Mr. Hendre is recommended as a thorough workman by his late employers.  
 Gilbert & Jones, of Jamestown, N. Y., are putting in additional Stevens' roller mills, to be furnished by the Jno. T. Noye Mfg Co., Buffalo, N. Y.  
 Geo. Esmond, Ft. Wayne, Ind., is shipping his Allis rolls to the Case Mfg Co., Columbus, O., to have their patent automatic feed placed on them.  
 The Case Mfg Co., Columbus, O., have lately furnished Taft & Gaiser, Linesville, Pa., with one four-roller Bismarck mill, with patent automatic feed.  
 A. Barnes, Wallukee, Hawaiian Islands, Sandwich Islands, has ordered a pair of Stevens' rollers of the John T. Noye Manufacturing Company, Buffalo, N. Y.  
 Terrill, Texas, will soon have a gradual reduction mill in operation; Lloyd & Rivers, proprietors. They expect to start up in a few days on the Case system.  
 Stout, Mills & Temple, Dayton, O., have a crew of Millwrights at the mills of Martin, Fisser & Ritter, Lancaster, Ohio, putting in Gilbert and Livingston rolls.  
 G. W. M. Keller of Middletown, Md., is putting in a double Stevens' roller mill, to be supplied by The John T. Noye Manufacturing Company, Buffalo, N. Y.  
 E. W. Pride, of Neenah, Wis., has bagged an order from Kline Bros., Kaukauna, Wis., for ten Stevens' roller mills, for the Jno. T. Noye Mfg Co., of Buffalo, N. Y.  
 The Case Mfg Co., Columbus, O., have an order from E. P. Rhodes & Co., Bridgeport, O., for a Case patent automatic feed for their 9x18 double Allis roll.  
 The Case Mfg Co., Columbus, O., have an order through A. F. Ordway & Son, Beaver Dam, Wis., for a line of breaks and rolls for Henry Pettit, Kingston, Wis.  
 The Union Mills Co. of Detroit, Mich., have ordered of the John T. Noye Manufacturing Company, Buffalo, N. Y., four pairs of Stevens' rolls for grinding middlings.  
 L. C. Torrance of Gowanda, N. Y., has ordered of the John T. Noye Manufacturing Company of Buffalo, N. Y., a single Stevens' roller mill for grinding middlings.  
 Thos. Thornburg, of Toledo, O., is at work on J. P. Warner's mill, Fostoria, Ohio, putting in Gilbert and Livingston rolls, from Stout, Mills & Temple, Dayton, O.  
 The Novelty Iron Works, Dubuque, Iowa, has ordered of the Case Mfg Co., Columbus, O., one Little Giant break machine, to be shipped to J. G. Botsford, Claremont, Iowa.  
 A. J. Klinger, Greenville, O., has shipped his Livingston rolls, paying freight both ways, to the Case Mfg Co., Columbus, O., to have their patent automatic feed attached.  
 C. E. Goshert, has just ordered for M. Cosgro, of Virginia, Ill., one Gilbert combined mill and four pair of Livingston rolls from Stout, Mills & Temple, Dayton, O.  
 J. B. Miller & Co., Ashley, O., who are running on the Case system of gradual reduction, write, "we are 700 bbls. flour behind on our orders from the town of Scranton, Pa."  
 W. T. Morse, La Fayette, Ind., has instructed the Jno. T. Noye Mfg Co., of Buffalo, N. Y., to ship him without delay a single Stevens' roller mill for germ. It will be done.  
 The Bloomington Mill Co., Illinois, are putting in Stevens' roller mills for grinding middlings. The John T. Noye Manufacturing Company of Buffalo, N. Y., will fill order.  
 Bird, Bridge & Co., Warren, Ill., have ordered of the Jno. T. Noye Mfg Co., Buffalo, N. Y., four double and one single roller mill, having the celebrated Stevens' corrugations.  
 W. R. Dell & Son, European agent for the Stevens roller mill at London, Eng. have instructed The Jno. T. Noye Mfg Co. of Buffalo, N. Y., to ship them two single mills for bran.  
 The Case Mfg Co., Columbus, O., have the order of G. A. Holes, Elizabeth, Pa., for one pair smooth rolls, with patent automatic feed, also a full line of other mill machinery.  
 C. S. Thompson, Attica, N. Y., has lately placed his order with the Case Mfg Co., Columbus, O., for one Little Giant break machine and scalper combined, making three separations.  
 The Jno. T. Noye Mfg Co., of Buffalo, N. Y., have received a cablegram from Australia for four Round's sectional roller mills. Carry the news to the utmost corners of the earth.  
 J. G. Guthrey, of Miami, Mo., has ordered through Chas. Heuber, St. Louis, Mo., three double Stevens' roller mills. The Jno. T. Noye Mfg Co., of Buffalo, N. Y., will fill the order.  
 J. J. Wilson of Algona, Iowa, has placed an order with The John T. Noye Manufacturing Company of Buffalo, N. Y., for two Round's sectional roller mills, and a double mill for germ.  
 Harris Bros., Mt. Pleasant, Mich., have ordered of the Jno. T. Noye Mfg Co., of Buffalo, N. Y., a Round's sectional roller mill, with Stevens corrugations and two 9x18 double line mills.  
 G. W. Clark of Fairport, N. Y., has ordered of The John T. Noye Manufacturing Company, Buffalo, N. Y., a Round's sectional roller mill and a 9x18 double mill, all with Stevens' corrugations.  
 Ritchey Milling Co., of Ritchey, Mo., have lodged an order with the Jno. T. Noye Mfg Co., of Buffalo, N. Y., through Chas. Heuber, of St. Louis, Mo., for three Stevens' double roller mills.  
 B. F. Gump, the Chicago, Ill., representative of the Stevens' roller mills, has directed the John T. Noye Manufacturing Company of Buffalo, N. Y., to ship him three single Stevens' roller mills.  
 Winslow & Conley, Lake Mills, Ia., have ordered of the Jno. T. Noye Mfg Co., of Buffalo, N. Y., a Round's sectional roller mill, with Stevens' corrugations, reel scalp-ers, and a double mill.  
 E. A. Van Arsdall, of Ontario, N. Y., has ordered of the Jno. T. Noye Mfg Co., Buffalo, N. Y., a Round's sectional roller mill with Stevens' corrugations, and a double 9x18 smooth roller mill.  
 G. W. Pearce, Valparaiso, Ind., has ordered a Round's sectional roller mill with Stevens' corrugations, and a double mill for bran and germ, from the Jno. T. Noye Mfg Co., of Buffalo, N. Y.  
 Heabler Bros. of Attica, Seneca Co., Ohio, has planted an order with the John T. Noye Manufacturing Company of Buffalo, N. Y., for a double Stevens' roller mill for grinding middlings and bran.  
 Gorton & Meyers, of Lima, O., have quite recently ordered of the Jno. T. Noye Mfg Co., of Buffalo, N. Y., a Round's sectional roller mill, two pairs, with roll scalp-ers, all with Stevens' corrugations.  
 Stout, Mills & Temple, Dayton, O., are receiving every few days orders from Pray Mfg Co., Minneapolis, Minn., for Livingston rolls in carload lots. The Pray Co. are having an immense trade for these rolls in the Northwest.

S. N. Hopkins, Castile, N. Y., is putting in his mill a Round's sectional roller mill with Stevens' corrugations, and two single mills, all to be furnished by the Jno. T. Noye Mfg Co., of Buffalo, N. Y.  
 Chas. Huber, the St. Louis, Mo., milling expert, has secured an order of E. W. Bennett, Mechanicsburg, Ill., for five pairs of Stevens' rolls, to be furnished by the Jno. T. Noye Mfg Co., of Buffalo, N. Y.  
 E. W. Pride, of Neenah, Wis., has placed an order with the Jno. T. Noye Mfg Co., Buffalo, N. Y., for Henry R. Pleisch, Stockton, Minn., for a Round's sectional roller mill, a single mill for working bran.  
 A. S. Barnes, Ludlowville, N. Y., has decided to put in his mill a Round's sectional roller mill with Stevens' corrugations, and two single mills; all to be furnished by the Jno. T. Noye Mfg Co., Buffalo, N. Y.  
 Jos. Pollock & Co., Vincennes, Ind., have directed Jno. Webster, of Detroit, Mich., to ship them a double Stevens' roller mill for grinding low grade flour. The Jno. T. Noye Mfg Co., of Buffalo, N. Y., will fill the order.  
 The Case Mfg Co., Columbus, O., have been awarded the contract of Geo. Esmond, Fort Wayne, Ind., for a full line of breaks, rolls, purifiers, scalp-ers, centrifugals, etc., for a full gradual reduction mill on the Case system.  
 Noel & Kuhn, Hanover, Pa., tumbled to a Round's sectional roller mill with Stevens' corrugations, cylinder scalper and elevators, and a single germ mill, all to be shipped by the Jno. T. Noye Mfg Co., of Buffalo, N. Y.  
 Mr. D. A. Wilcox, of Earlsville, Madison Co., N. Y., gracefully tumbles to the new improvements and orders the Jno. T. Noye Mfg Co., Buffalo, N. Y., to ship him a Round's sectional roller mill, with Stevens' corrugations.  
 J. T. Stittler, Kittanning, Pa., has lodged an order with the Jno. T. Noye Mfg Co., of Buffalo, N. Y., for a Round's sectional roller mill, with Stevens' corrugations, cylinder scalper and elevators, and a double mill for germ and low grade.  
 C. Bennet & Son, Louisville, O., have ordered the Case Mfg Co., Columbus, O., to ship one four-roller Bismarck mill with patent automatic feed and one Case centrifugal reel, to Greentown, O., to go in the mill they are remodeling at that place.  
 The Case Mfg Co., Columbus, O., have been awarded the contract of A. J. Klinger, Greenville, O., for a full gradual reduction mill on the Case system, using a full line of breaks, rolls, purifiers, centrifugals, scalp-ers, etc., of the Case Co's manufacture.  
 I. H. Defrees & Son, at Goshen, Ind., have instructed The Jno. T. Noye Mfg Co. of Buffalo, N. Y., to ship them two pairs Round's sectional roller mills with reel scalp-ers, and a double 9x18 mill for germ and bran; all with the celebrated Stevens' corrugations.  
 Dennis & Barr of Longwood, Colorado, have closed a contract with The John T. Noye Manufacturing Company of Buffalo, N. Y., for a complete outfit for their new mill which is to include nine pairs of the popular Stevens' rolls, Smith purifiers, and everything complete.  
 E. W. Pride, the gallant defender of Stevens' rolls, has gobbled an order from the Wambols Milling Co., of Appleton, Wis., for the Jno. T. Noye Mfg Co., of Buffalo, N. Y., for six single roller mills. They, too, will soon experience thrills of unalloyed happiness.  
 D. Scott, of Macomb, Ill., is now running his remodeled mill successfully. He has no trouble, and is meeting and overcoming the sharpest competition in the country with his flour. He is using Gilbert and Livingston rolls. James McGraw, of Kankakee, Ill., using the same, with success.  
 Chas. Rakes, of Lockport, N. Y., is having an immense trade on Gilbert combined and Livingston roller mills. Among his recent orders, is one for a line of rolls for C. Sherman, Mottville, N. Y., and a Gilbert mill with Livingston finishing rolls, for Jas. R. Clark & Co., Baltimore, Md.  
 Stout, Mills & Temple, of Dayton, Ohio, have recently contracted with Lower Bros., of Princeton, Ill., to remodel their mill, using a Gilbert combined mill for breaks, and Livingston finishing rolls. The work is now under way, and in the hands of C. E. Goshert, their agent for Central Illinois.  
 After carefully investigating the different roller systems, E. E. Carpenter of Dover, O., placed his order with the Case Mfg Co. of Columbus, O., for 10 pairs Case rolls in addition to breaks, purifiers, centrifugals, scalp-ers &c. of the Case Co's manufacture, for a full gradual reduction mill on the Case system.  
 A. A. Pearis, Bakersville, O., after running 1 double set of Case rolls for some time shows his appreciation of the same by placing his order with the Case Mfg Co., Columbus, O., for a complete outfit for a gradual reduction mill on the Case system—using 8 pairs of their rolls, in connection with their purifiers, centrifugals, breaks, &c.  
 A disastrous fire recently totally destroyed the fine mill of H. B. Eggers & Co., St. Louis, Mo., but with commendable enterprise, they already have under way a mill of about the same capacity. Chas. Heuber, the Hungarian milling expert, planned the mill, and the Jno. T. Noye Mfg Co., of Buffalo, furnish six pairs of Stevens' rolls.  
 James H. Burdick, of Whitewater, Wis., has accepted a position as head miller for Brown, Douglas & Brown, at La Belle Roller Mills, at Oconomowoc. He was in their employ for many years at Whitewater, and is a gentleman who thoroughly understands his business. The reputation of La Belle Roller Mill will be enhanced by the acquisition.  
 Shuler & Co., of Minneapolis, Minn., the most popular mill builders in the West, have taken an order from Slaughter & Lindsey, Fullerton, Neb., for the construction of a roller mill in which will be used a Round's sectional roller mill with Stevens' corrugations and five pair of line rolls, all to be furnished by the Jno. T. Noye Mfg Co., of Buffalo, N. Y.  
 The Case Mfg Co., Columbus, O., have been awarded the contract of C. Aue & Pearson, California, Mo., for a complete outfit of breaks, rolls, purifiers, centrifugals, scalp-ers, etc., for a full gradual reduction mill on the Case system. Messrs. Crane & Pearson are in quite a hurry to have their mill completed, and the Case Co. will push their job with all the speed possible.  
 The Case Mfg Co., Columbus, O., have lately been awarded the contract of Mat. Wolf, DeGraff, O., for a full gradual reduction mill, on the Case system, using 12 pairs of Case rolls in connection with their purifiers, centrifugals, scalp-ers, etc. This mill will come in competition with some of the best roller mills of other manufacture. The Case Co. are bound it shall be second to none.  
 Edw. P. Allis & Co., of the Reliance Works, Milwaukee, Wis., recently secured the contract for remodeling the mill of Messrs. Price & Wilkinson, at Taylorville, Ill., and are putting in twenty pair of Allis' rolls in Gray's noiseless belt frames, together with the machinery, necessary to complete the change. The mill will be driven with a 16x42 Reynolds' Corliss engine. When completed this mill will be capable of doing as good work as any mill in that part of the state.

Lewis Emery, Jr., of Three Rivers, Mich., has determined to increase the capacity of his mill to five hundred barrels, and has deposited an order with the Jno. T. Noye Mfg Co., Buffalo, N. Y., for sixteen pair of Stevens' rolls, and the necessary machinery to accomplish the purpose. It is intended to use the centrifugal system exclusively, and J. S. Karus will boss the job.  
 Jno. Webster, of Detroit, Mich., reports the general outlook for business quite good. He has recently taken an order from G. W. Kennard, Champaign, Ill., to overhaul his mill to the roller system, and for that purpose has instructed the Jno. T. Noye Mfg Co., of Buffalo, N. Y., to ship a Round's sectional roller mill, with Stevens' corrugations and six pairs of line rolls.  
 The Case Mfg Co., Columbus, O., have lately been awarded the contract of E. Weaver, of Windsor, Mo., for a full gradual reduction mill on the Case system, using a complete line of breaks, rolls, purifiers, centrifugals, scalp-ers, etc., of the Case Co's manufacture. This mill will come in competition with some of the best roller mills in Missouri and Mr. Weaver can rest assured that in the hands of the Case Co. he will get a mill second to none.  
 Garret Reublin, Elyria, O., has been contemplating the remodeling of his mill to the roller system, for some time, and has lately placed his order with the Case Mfg Co., Columbus, O., for a complete outfit of breaks, rolls, purifiers, centrifugals, scalp-ers, etc. Mr. Reublin is one of the foremost millers of Northern Ohio, and thoroughly investigated the different systems before placing his order.  
 Among the many mills that are now changing to the gradual reduction system, is the one at Brownhelm, O., F. H. Bacon, proprietor. Mr. Bacon has contemplated the change for some time, and after a careful investigation of the different systems, placed his order with the Case Mfg Co., Columbus, O., for a complete line of breaks, rolls, purifiers, centrifugals, scalp-ers, etc., of their manufacture.  
 Stout, Mills & Temple, Dayton, Ohio, have recently received orders for their celebrated New American Turbine from the following parties: O. E. Merrill, & Co., Beloit, Wis., 36 in. wheel; Stormont Milling Co., Silver Reef, Utah, 48 in. wheel; A. A. Simonds, Dayton, O., 60 in. wheel; M. D. Keeny, Wilmington, Ill., 60 in. wheel; Rock River Paper Co., Beloit Wis., 36 in. wheel; Sylvester Welon, St. Catharines, Ont., 60 in. wheel; G. S. Garg, Jr., Milford, Iowa, 30 in. wheel; Pray Mfg Co., Minneapolis, Minn., 60 in. wheel; C. B. Gaskill, Niagara Falls, N. Y., 48 in. wheel; Pray Mfg Co., Minneapolis, Minn., 48 in. wheel; White River Lumber Co., Mason, Wis., 60 in. wheel.

## IMPORTANT NOTICE.

Milwaukee, Wis., May 1st, 1883.

To Whom it May Concern:

For the more complete protection of our patrons, and to secure them beyond question against loss or annoyance from suits for infringement with which they have been threatened, we have, at a great cost to ourselves, secured a LICENSE from the GEO. T. SMITH MIDDINGS PURIFIER CO. of Jackson, Michigan, KIRK & FENDER, of Minneapolis, Minn., and SAM'L L. BEAN, of Washington, D. C., licensing the "PRINZ" Dust Collector under all Dust Collector patents owned by the parties above named. The patents now controlled by our company on this class of machines cover broadly the whole process of collecting dust in flour mills, and all the most modern devices by which the process is carried out.

The license, which we shall furnish to all parties having Dust Collectors made by us, carries with it ABSOLUTE security and PROTECTION in the use of our machines.

Yours very truly,

MILWAUKEE DUST COLLECTOR MFG. CO.  
 JULIUS SCHLESINGER, Manager.

## STEEL CAR PUSHER

Made entirely of STEEL. ONE MAN with it can easily move a loaded car. Will not slip on ice or grease.

Manufactured by E. P. DWIGHT, Dealer in Railroad Supplies, 407 Library St., Philadelphia, Pa.


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## W. M. SHOOK, Millwright and Contractor

Dealer in all kinds of Mill Furnishings.  
 PRACTICAL ROLLER MILL BUILDER.  
 Office and Shops 172 and 174 South Market Street, CANTON, OHIO.

## Northwestern Mill Bucket Manufactory

310, 312, and 314 FLORIDA STREET.



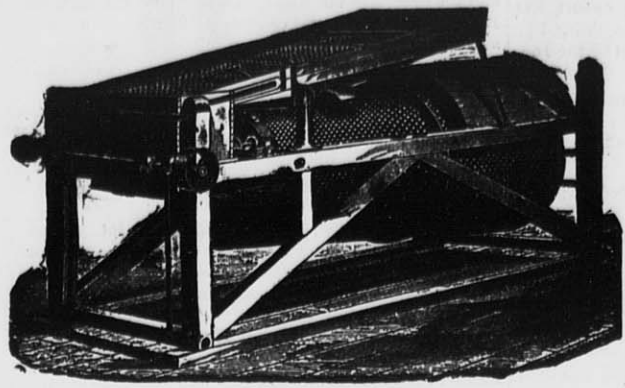
NORTHWESTERN MILL BUCKET MILWAUKEE

Is furnishing Mills and Elevators in all parts of the country with their superior BUCKETS. They are UNEQUALLED for their SHAPE, STRENGTH and CHEAPNESS. Leather, Rubber, Canvas Belting and Bolts at lowest market rates. We have no traveling agents. Sample Buckets sent on application. Large orders will receive liberal discounts. Send for sample order. Address all inquiries and orders to L. J. MUELLER, 197 Reed St., Milwaukee, Wis. [Mention this paper when you write us.]



# COCKLE SEPARATOR MANUFACTURING COMPANY, MILWAUKEE

## GENERAL MILL FURNISHERS



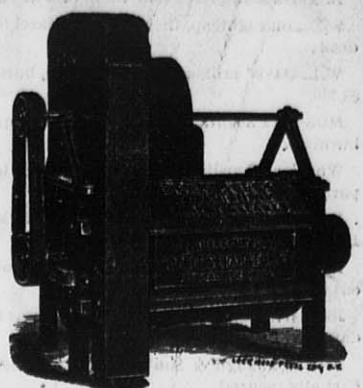
PLAIN COCKLE MACHINE.

### AND MANUFACTURERS OF IMPROVED COCKLE SEPARATORS

(Kurth's Patent.) Also built in combination with

### Richardson's Dustless Wheat Separators!

Also Sole Manufacturer of BEARDSLEE'S PAT. GRAIN CLEANER.



BEARDSLEE'S WHEAT CLEANER.

Perforated Zinc at Bottom Figures.

Send for Illustrated Catalogue.

WE GUARANTEE GREAT CAPACITY combined with GOOD QUALITY OF WORK. Any common Sieve will separate the cockle from wheat, but to separate it WITHOUT WASTE is the GREATEST FEATURE of our Machine. A WASTEFUL machine is a DAILY LOSS OF MONEY in a mill. There is NO MACHINE IN THE MARKET which can stand comparison with ours.

Carbondale, Ill., Dec. 2, 1881.  
Cockle Separator Mfg. Co., Milwaukee.  
Gentlemen:—Replying to your late favor, would say that we can cheerfully recommend your Cockle Separator as doing all that you claim for it. We have tested ours thoroughly by this time and know whereof we speak. We would not think of doing without it, having tried it once, and can conscientiously vouch for its good work.

Yours respectfully,  
BROWN & WINFREY.

Perrysville, Ind., Nov. 24, 1881.  
Cockle Separator Mfg. Co., Milwaukee.  
Sirs:—The combined machine I bought of you has been running about three weeks. It certainly does all you claim for it, and is the most perfect Separator that I have any knowledge of.

Yours respectfully,  
B. O. CARPENTER.

Hixton, Jackson Co., Wis., Dec. 30, '81  
Cockle Separator Mfg. Co., Milwaukee.  
Gents:—In answer to your inquiry of the 28th inst., I would say that the combined machine I bought of you last summer, works to my entire satisfaction. Respectfully yours,

W. T. PRICE,  
D. G. THOMAS.

P. S.—I have been milling now for twenty-seven years, but never have I seen anything that will equal yours in cleaning wheat.

As an Oat Separator it is No. 1, and for Cockle it cannot be beat. I can take screenings and separate the cockle from it without wasting any of the small wheat. In my opinion every mill in the United States ought to have one, and if I were to build a mill I would have no other. I remain

Yours, etc. D. G. THOMAS.

Minneapolis, Minn. Aug. 22, 1881.  
Cockle Separator Mfg. Co.:—

We have been using two of Beardslee's wheat cleaners, a scourer and finisher, for nearly two years, and are passing one hundred and fifty bushels per hour through them, one third more than rated capacity, and are not using any other cleaners, and consider our wheat as well cleaned as any in Minneapolis.

Yours truly,

CAHILL, FLETCHER &amp; CO.

La Crosse, Wis., July 30, 1881.

Cockle Separator Mfg. Co., Milwaukee.

Gentlemen:—The Beardslee Grain Cleaner sent me about the middle of June has been in operation since that

time with very satisfactory results. We cannot see that it breaks the wheat or requires an unusual amount of power to run it.

Yours truly,

WILLIAM LISTMAN.

Milwaukee, Wis., Aug. 23, 1881.

Cockle Separator Mfg. Co.

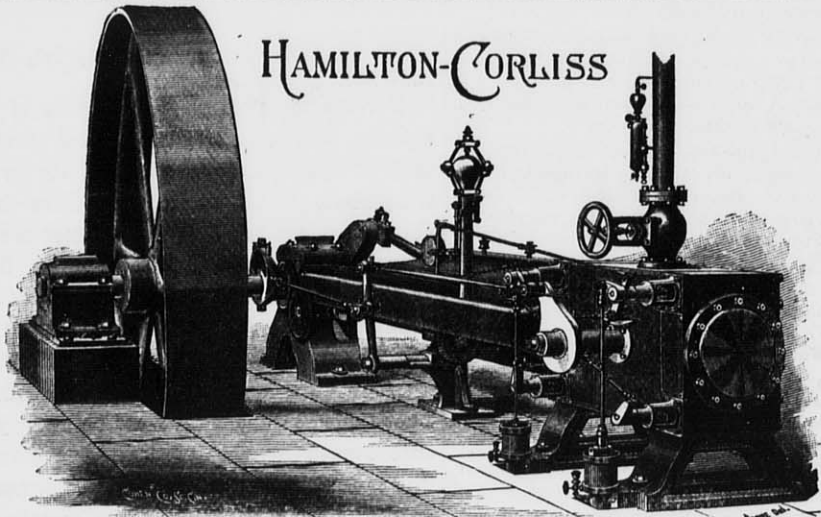
Gentlemen:—The Beardslee's Grain Cleaners which we have purchased from you for our New Era and Milwaukee Mills give us the best of satisfaction. Experienced millers having seen the work done by the machine agree with us, that it cannot be beat. You are at liberty to use our names as a reference, and to any party calling on us we will be pleased to show the machine in operation.

Yours truly,

NEW ERA MILLING CO.

### Pott's Patent Automatic Feeder!

The best device for regulating the FEED ON ROLLER MILLS, PURIFIERS, and other machines requiring a regular feed, spread out the full width. Very cheap and simple. Sent on trial upon application. Write for circulars with illustrations. Perforated Zinc of all sizes at low rates. Send for Illustrated Catalogue.



HAMILTON-CORLISS

CLOSE REGULATION and BEST ATTAINABLE ECONOMY of FUEL and STEAM

Highest Efficiency and Superior Construction. Made in all Sizes, from 50 to 300 H. P.

THE HOOVEN, OWENS &amp; RENTSCHLER CO.,

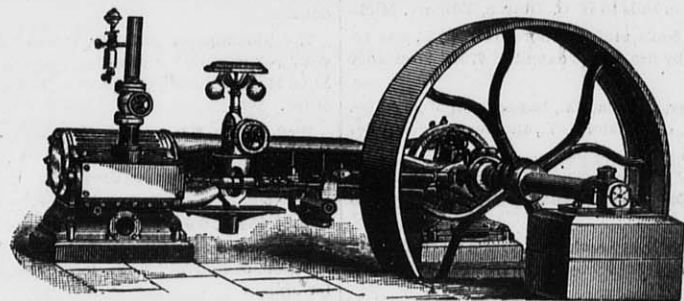
Builders of all styles of Engines, Boilers, Saw Mills, etc., etc.

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CORRESPONDENCE SOLICITED.

## WOODBURY, BOOTH & PRYOR, ROCHESTER, N. Y.



Manufacturers of

Automatic Cut-Off, Fixed Cut-Off, and Slide Valve

## Steam Engines, Tubular Boilers.

[Mention this paper when you write.]

## The Geo. T. Smith Middlings Purifier.

### LOW IN PRICE,

Quantity and Quality of Work Considered.

Licensed Under all Patents

Owned by the Consolidated Middlings  
Purifier Company.

Simple, Easily Adjusted,

### SPECIAL NOTICE.

For the more complete protection of our customers, and to put an end at once and forever to the demands for royalties by which they have recently been annoyed, we have purchased ALL PATENTS relating to Purifiers, lately owned by Huntley, Holcomb & Heine, including the well-known MIDDLETON PATENT and its several re-issues.

Every purchaser or owner of a Geo. T. Smith Purifier, in the past or future, owns the right to use it unmolested and unchallenged, and in this right we have, can and shall protect them.

Intending purchasers should give this notice attention, as it is of the utmost importance to them.

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